Catalogue No. H

CATALOGUE No. 32

OF

MILLERS FALLS COMPANY

E. P. STOUGHTON, *President*

GEO. E. ROGERS, *Vice-President and Treasurer*

GEO. W. NIMS, *Secretary*

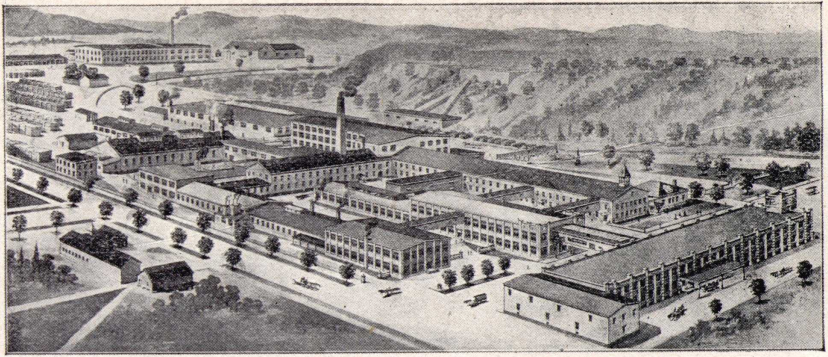
Warehouse and Sales Office:

28 Warren Street, NEW YORK, U. S. A.

Works:

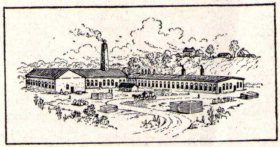
MILLERS FALLS, MASS., U. S. A.

Cable Address: TIGNONA



THE MAIN WORKS OF THE MILLERS FALLS COMPANY
AT MILLERS FALLS, MASS., U. S. A.
IN THE YEAR 1912

(All buildings shown in the above illustration are a part of our works)



1873

Introduction

Some of our correspondents, whom we have not had the pleasure of welcoming at our factory office, may be interested in seeing an illustration of our works, so we are showing on a preceding page a cut of them. Considerable enlargements have recently been made in order to keep pace with the demands upon us. With the increased facilities we are now prepared to turn out goods in largely increased volume.

Several of our lines have been materially extended. We propose to continue our long time reputation of being headquarters on them.

In preparing the catalogue descriptions we have endeavored to be concise and at the same time bring out the salient points of our tools. Much more could be said in their favor. To add that we stand back of every tool of our make seems almost superfluous. We trust that the manner of grouping tools of a kindred nature will be found convenient to our patrons.

As fast as possible we are adopting a uniform label in order to make our goods quickly distinguishable.

Some new tools have been added and several modifications made in those heretofore listed. These new and modified tools consist of

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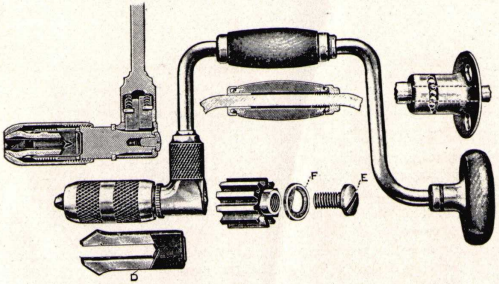
Electrotypes, illustrating tools of our make, wanted by our customers, will be furnished free of expense.

MILLERS FALLS COMPANY.

MASTER RATCHET BRACES

Nos. 830 to 833 and 830A to 833A



POLISHED AND NICKELED steel; **COCOBOLO** wood.

BALL-BEARING head.

NON-SPLITTING ADJUSTABLE BALL-BEARING, always **FREE ACTING** sweep handle.

Covered, **DUST-PROTECTED** ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

UNBREAKABLE jaw socket made from bar steel.

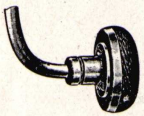
Chuck shell strengthened at the lip and of convenient shape to fit the hand.

FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Conscientious and thorough workmanship in every detail.

Nos.	830	831	832	833
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	48¾ lbs.	43½ lbs.	40¼ lbs.	37½ lbs.
Price, per dozen	**$38.00**	**$36.00**	**$34.00**	**$32.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.



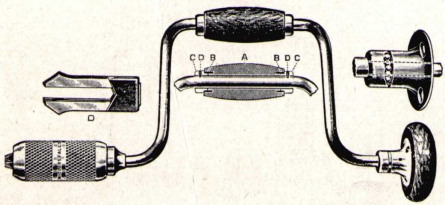
WITH STEEL CLAD HEADS

Nos.	830A	831A	832A	833A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	50¾ lbs.	45½ lbs.	42¼ lbs.	39½ lbs.
Price, per dozen	**$40.00**	**$38.00**	**$36.00**	**$34.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

HOLDALL BRACES

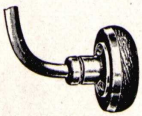
Nos. 710 to 713 and 710A to 713A



POLISHED AND NICKELED steel; **COCOBOLO** wood.
BALL-BEARING head.
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D).
Thoroughly substantial chuck of convenient shape.
FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Nos.	710	711	712	713
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	36½ lbs.	32 lbs.	30 lbs.	25 lbs.
Price, per dozen	**$26.00**	**$24.00**	**$22.00**	**$20.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



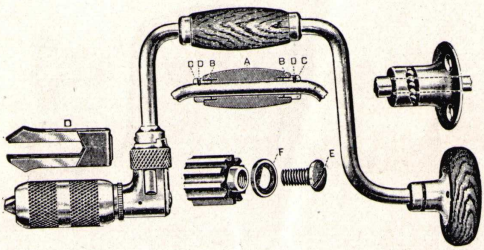
WITH STEEL CLAD HEADS

Nos.	710A	711A	712A	713A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	38½ lbs.	34 lbs.	32 lbs.	27 lbs.
Price, per dozen	**$28.00**	**$26.00**	**$24.00**	**$22.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

HOLDALL RATCHET BRACES

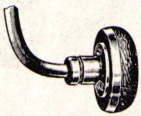
Nos. 730 to 733 and 730A to 733A



POLISHED AND NICKELED steel; **COCOBOLO** wood.
BALL-BEARING head.
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D).
Covered, **DUST-PROTECTED,** simply constructed ratchet parts.
Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**
UNBREAKABLE jaw socket made from bar steel.
Chuck shell strengthened at the lip and shaped to fit the hand.
FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Nos.	730	731	732	733
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	51 lbs.	44½ lbs.	42 lbs.	37½ lbs.
Price, per dozen	**$32.00**	**$30.00**	**$28.00**	**$26.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.



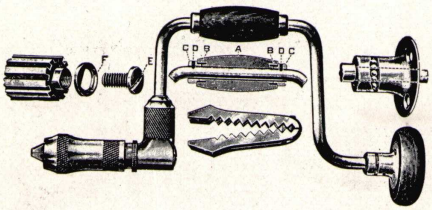
WITH STEEL CLAD HEADS

Nos.	730A	731A	732A	733A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	53 lbs.	46½ lbs.	44 lbs.	39½ lbs.
Price, per dozen	**$34.00**	**$32.00**	**$30.00**	**$28.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 130 to 133 and 130A to 133A



POLISHED AND NICKELED steel; **COCOBOLO** wood.

BALL-BEARING head.

NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D).

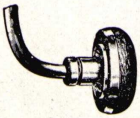
Covered, **DUST-PROTECTED** ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

Nos:	130	131	132	133
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36¾ lbs.	32¾ lbs.
Price, per dozen	**$30.00**	**$28.00**	**$26.00**	**$24.00**

Packed ⅛ dozen in a pasteboard box and 3 dozen in a case.



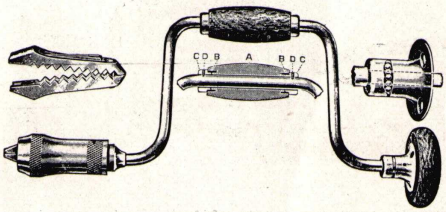
WITH STEEL CLAD HEADS

Nos.	130A	131A	132A	133A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38¾ lbs.	34¼ lbs.
Price, per dozen	**$32.00**	**$30.00**	**$28.00**	**$26.00**

Packed ⅛ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

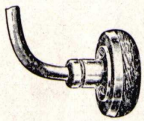
Nos. 10 to 15 and 10A to 15A



POLISHED AND NICKELED steel; **COCOBOLO** wood.
BALL-BEARING head (except on Nos. 15 and 15A).
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D)
FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

Nos	10	11	12	13	14	15
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.	4 in.
Weight, per dozen (with pasteboard boxes)	35¾ lbs.	31¼ lbs.	29¼ lbs.	24½ lbs.	22 lbs.	18¼ lbs.
Price, per dozen	**$23.00**	**$21.00**	**$19.00**	**$17.00**	**$15.00**	**$14.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



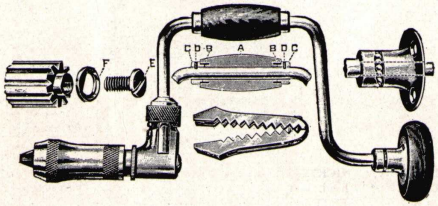
WITH STEEL CLAD HEADS

Nos	10A	11A	12A	13A	14A	15A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.	4 in.
Weight, per dozen (with pasteboard boxes)	37¾ lbs.	33¼ lbs.	31¼ lbs.	26¼ lbs.	24 lbs.	20¼ lbs
Price, per dozen	**$25.00**	**$23.00**	**$21.00**	**$19.00**	**$17.00**	**$16.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 30 to 34 and 30A to 34A



POLISHED AND NICKELED steel; **COCOBOLO** wood.

BALL-BEARING head.

NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS** (B) and **ADJUSTABLE BEARINGS** (C) clamped with screws (D).

COVERED ratchet teeth with exposed ratchet dogs.

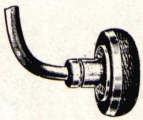
Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

For nearly two generations the standard in the bit brace world.

Nos.	30	31	32	33	34
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36½ lbs.	32½ lbs.	30 lbs.
Price, per dozen	**$29.00**	**$27.00**	**$25.00**	**$23.00**	**$21.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.



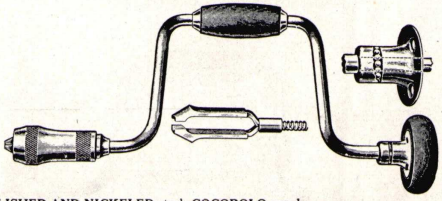
WITH STEEL CLAD HEADS

Nos.	30A	31A	32A	33A	34A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38½ lbs.	34½ lbs.	32 lbs.
Price, per dozen	**$31.00**	**$29.00**	**$27.00**	**$25.00**	**$23.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

BARBER BRACES

Nos. 40 to 44



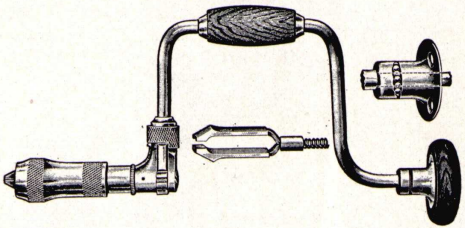
POLISHED AND NICKELED steel; **COCOBOLO** wood.
BALL-BEARING head.
Brass **RINGS INSERTED** in sweep handle.
FORGED STEEL jaws.

Nos.	40	41	42	43	44
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	37 lbs.	30½ lbs.	28½ lbs.	24½ lbs.	21 lbs.
Price, per dozen	**$20.50**	**$18.50**	**$16.50**	**$14.50**	**$12.50**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

BARBER RATCHET BRACES

Nos. 61 to 63



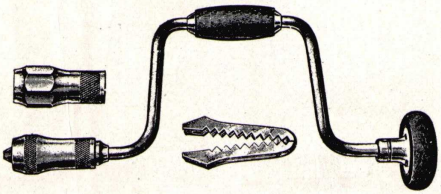
Open ratchet.
Otherwise the same as Braces Nos. 40 to 44 shown above.

Nos.	61	62	63
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	36 lbs.	33 lbs.	30 lbs.
Price, per dozen	**$24.00**	**$22.00**	**$20.00**

Packed ¼ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

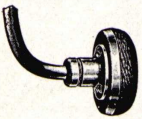
Nos. 220 to 223 and 220A to 223A



POLISHED AND NICKELED steel; stained hardwood.
Brass rings **INSERTED** in sweep handle.
FORGED STEEL ALLIGATOR JAWS.

Nos.	220	221	222	223
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	32 lbs.	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$11.25**	**$10.25**	**$9.25**	**$8.25**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



WITH STEEL CLAD HEADS

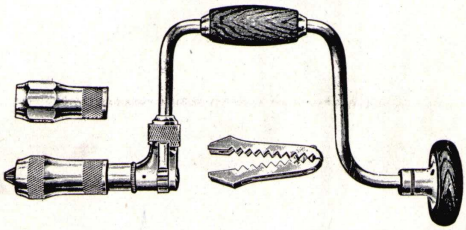
Nos.	220A	221A	222A	223A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	34 lbs.	29½ lbs.	27½ lbs.	22 lbs.
Price, per dozen	**$13.25**	**$12.25**	**$11.25**	**$10.25**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER IMPROVED RATCHET BRACES

Nos. 320 to 323 and 320A to 323A

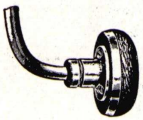


Open ratchet.

Otherwise the same as Braces Nos. 220 to 223 and 220A to 223A shown on page next preceding.

Nos	320	321	322	323
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	40 lbs.	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	**$19.50**	**$18.50**	**$17.50**	**$16.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



WITH STEEL CLAD HEADS

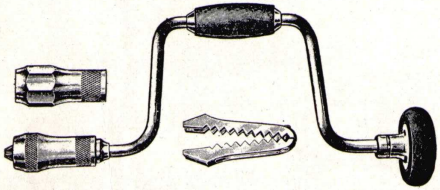
Nos	320A	321A	322A	323A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	42 lbs.	36 lbs.	33½ lbs.	29½ lbs.
Price, per dozen	**$21.50**	**$20.50**	**$19.50**	**$18.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER IMPROVED BRACES

Nos. 20 to 23



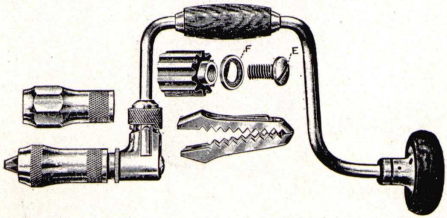
Stained hardwood; metal parts polished.
Steel sweeps and jaw sockets.
FORGED STEEL ALLIGATOR JAWS.
A popular, medium-priced Brace and a large seller.

Nos	20	21	22	23
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	32 lbs.	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	$9.75	$9.00	$8.25	$7.50

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 120 to 123



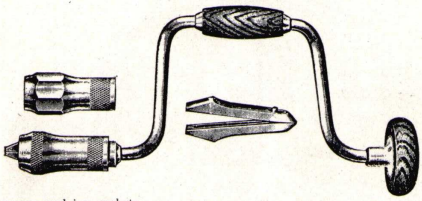
Ratchet teeth inclosed.
Otherwise the same as Braces Nos. 20 to 23 as shown above.
Exceptional value for price asked and quickly sold.

Nos	120	121	122	123
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	41 lbs.	35 lbs.	33 lbs.	29 lbs.
Price, per dozen	$18.00	$17.00	$16.00	$15.00

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 541 to 543



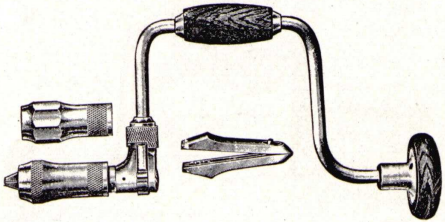
Steel sweeps and jaw sockets.
COCOBOLO wood; metal parts **NICKELED.**
Plain jaws.

Nos	541	542	543
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	26 lbs.	24 lbs.	18½ lbs.
Price, per dozen	**$11.75**	**$11.25**	**$10.75**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 561 to 563



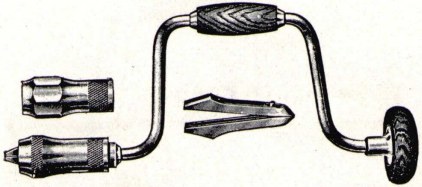
Open ratchet.
Otherwise the same as Braces Nos. 541 to 543 shown above.

Nos	561	562	563
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	36 lbs.	33½ lbs.	29½ lbs.
Price, per dozen	**$16.50**	**$16.00**	**$15.50**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 401 to 403



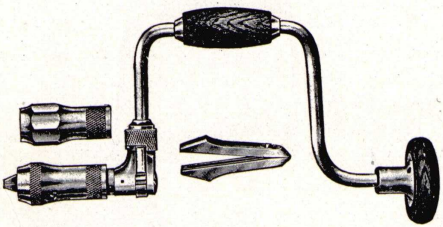
Steel sweeps and jaw sockets.
Metal parts **NICKELED**; stained hardwood heads and handles.
Plain jaws.

Nos	401	402	403
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$8.80**	**$8.20**	**$7.60**

Furnished with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 421 to 423



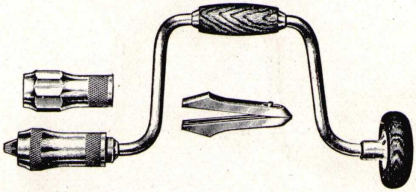
Open ratchet.
Otherwise the same as Nos. 401 to 403 shown above.

Nos	421	422	423
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	**$13.60**	**$13.00**	**$12.40**

Furnished with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 601 to 603



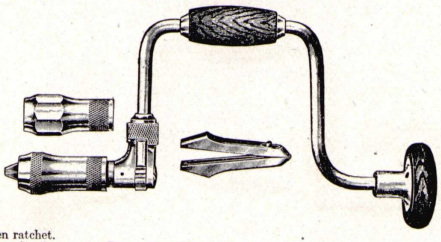
Steel sweeps and jaw sockets.
Stained hardwood; metal parts polished.
Plain jaws.

Nos.	601	602	603
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	27¼ lbs.	25¼ lbs.	20 lbs.
Price, per dozen	$7.30	$6.70	$6.10

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 631 to 633



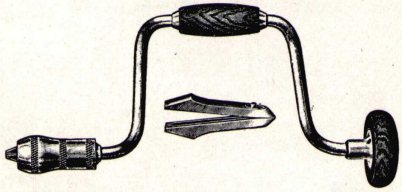
Open ratchet.
Otherwise the same as Braces Nos. 601 to 603 shown above.

Nos.	631	632	633
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	$11.60	$11.00	$10.40

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 141 to 143



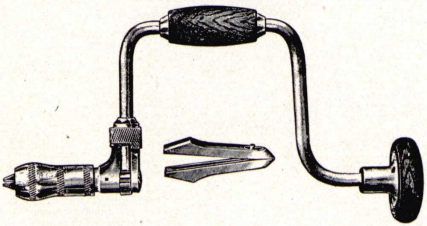
Metal parts **POLISHED**; stained hardwood.
Steel sweeps and jaw sockets.
Plain jaws.

Nos.	141	142	143
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	23 lbs.	21 lbs.	15½ lbs.
Price, per dozen	**$5.00**	**$4.40**	**$4.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 161 to 163

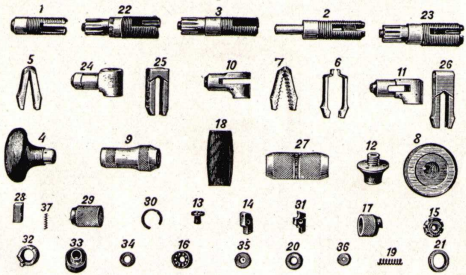


Open ratchet.
Otherwise the same as Braces Nos. 141 to 143 shown above.

Nos.	161	162	163
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$9.00**	**$8.50**	**$8.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

LIST OF PARTS OF BIT BRACES AND PRICES



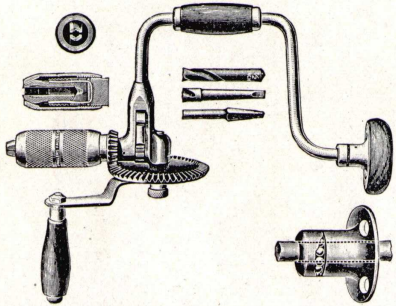
In ordering parts the number of the brace for which they are wanted should be specified as well as the number of the part.

No.		Price
1	Tail socket for Braces Nos. 710 to 713 and 10 to 15	$0.30
1	Tail socket for Braces Nos. 220 to 223, 20 to 23 and 541 to 543	.25
1	Tail socket for Braces Nos. 401 to 403, 601 to 603 and 141 to 143	.20
2	Tail socket for Braces Nos. 61 to 63	.40
3	Tail socket for Braces Nos. 130 to 134 and 30 to 34	.40
3	Tail socket for Braces Nos. 120 to 123	.30
4	Head, maple wood, stained	.10
5	Jaws for Braces Nos. 541 to 543, 561 to 563, 401 to 403, 421 to 423, 601 to 603, 631 to 633, 141 to 143 and 161 to 163, per pair	.20
6	Jaws for Braces Nos. 40 to 44 and 61 to 63, per pair	.20
7	Jaws for Braces Nos. 130 to 134, 10 to 15, 30 to 34, 220 to 223 and 320 to 323, per pair	.25
7	Jaws for Braces Nos. 20 to 23 and 120 to 123, per pair	.20
8	Head, cocobolo wood	.20
8	Head, stained wood	.10
9	Shell, nickeled	.40
9	Shell, polished	.30
10	Crooked socket for Braces Nos. 61 to 63, 320 to 323 and 561 to 563	.40
10	Crooked socket for Braces Nos. 421 to 423, 631 to 633 and 161 to 163	$0.25
11	Crooked socket for Braces Nos. 130 to 134 and 30 to 34	.40
11	Crooked socket for Braces Nos. 120 to 123	.30
12	Quill	.25
13	Chuck screw	.05
14	Ratchet pawl, per set	.40
15	Ratchet wheel	.20
16	Ball cup	.06
17	Holdall and common ratchet ring	.12
18	Handle, maple, stained	.12
18	Handle, cocobolo	.20
19	Pawl spring	.02
20	Ball plate	.01
21	Washer	.01
22	Holdall socket	.45
23	Master socket	.45
24	Master crooked socket	.40
25	Master jaws, per pair	.30
26	Holdall jaws, per pair	.40
27	Holdall and Master shells	.45
28	Master ratchet pawl, per pair	.25
29	Master ratchet ring	.20
30	Master ratchet ring spring	.02
31	Holdall ratchet pawl, per pair	.40
32	Master ring bushing	.10
33	Master handle ball cup	.12
34	Master handle ball cup washer	.01
35	Master handle ball cup collar	.10
36	Quill washer	.01
37	Master pawl spring	.01

DRILL BRACE

No. 182

WITH BALL BEARINGS AND MASTER CHUCK



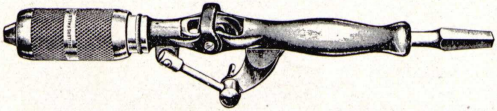
Our best grade of **BALL BEARING, RATCHET** brace with 10-inch sweep.
Drilling attachment removed or affixed in a moment's time.
Gear ratio about 3 to 1.

Weight, per dozen (with pasteboard boxes), 57 lbs.
Price, per dozen, **$42.00.**
Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK

No. 108

WITH MASTER CHUCK

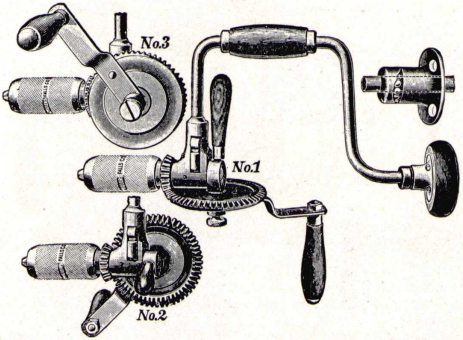


To be used with a bit brace or a breast drill either as an **EXTENSION** or **ANGULAR BORER.**
ADJUSTABLE ARC varies angle from 180° to 125°.

Length (when at 180°), 12½ inches.
Weight, per dozen (with pasteboard boxes), 26 lbs.
Price, per dozen, **$21.00.**
Packed 1 in a pasteboard box.

DRILL BRACE

No. 192

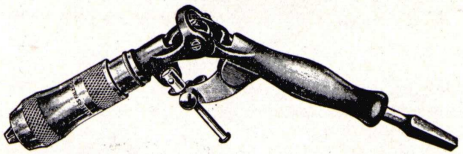


Best grade of **BALL-BEARING, RATCHET** brace with 10-inch sweep and **MASTER CHUCK.**
Improved ratchet; dogs may be thrown out of mesh **SIMULTANEOUSLY** and permit tool to be used as a breast drill.
Drilling attachment affixed or detached quickly and with ease; may be **SWIVELED INTO ANY ONE OF THREE POSITIONS.** Nos. 1, 2, and 3, as shown in illustration.
Weight, per dozen (with pasteboard boxes), 58 lbs.
Price, per dozen, **$44.00.**
Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK

No. 109

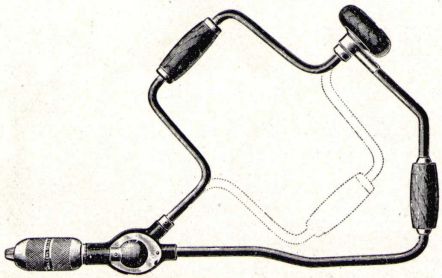
WITH BARBER IMPROVED CHUCK



Differs from No. 108 Angular Bit Stock, shown preceding, in chuck only.
Price, per dozen, **$21.00.**
Packed 1 in a pasteboard box.

CORNER BIT BRACE

WITH MASTER CHUCK



COCOBOLO wood; metal parts **POLISHED AND NICKELED** except japanned hub casting.

BALL-BEARING head and **ADJUSTABLE, FREE ACTING** sweep and steadying handles.

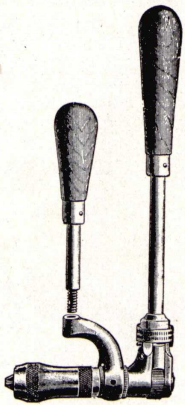
Chuck operated by **INCLOSED GEARS, PROTECTED** from dust and dirt.

Nos.	502	503
Size of sweep	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	57 lbs.	55 lbs.
Length	17½ in.	17½ in.
Price, per dozen	**$48.00**	**$46.00**

Packed ¼ dozen in a pasteboard box.

RATCHET CORNER BORER

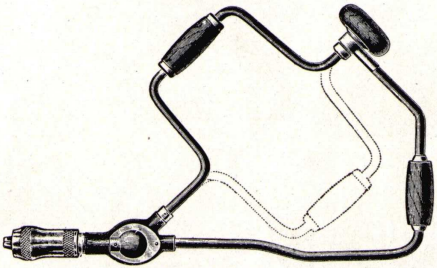
No. 140



Stained hardwood; metal parts **POLISHED AND NICKELED.**
Steadying handle removable.
Fine ratchet teeth to admit short bite.
Barber chuck with **ALLIGATOR** jaws.
Length vertically (placed as cut), 13¼ inches.
Length horizontally, 5 inches.
Weight, per dozen (with pasteboard boxes), 28 lbs.
Price, per dozen **$24.00.**
Packed 1 in a pasteboard box.

CORNER BIT BRACE

WITH BARBER IMPROVED CHUCK

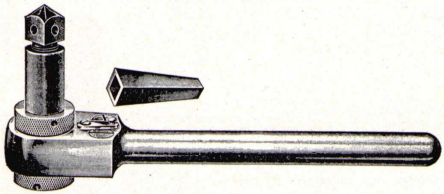


The same as Corner Bit Braces Nos. 502 and 503, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially to hold bit stock shanks, also many sizes of round shanks.

Nos.	512	513
Size of sweep	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	53 lbs.	51 lbs.
Price, per dozen	**$48.00**	**$46.00**

Packed ½ dozen in a pasteboard box.

RATCHET DRILL



Handsomely **NICKELED.**
Distance from top of feed screw to mouth of socket, **FOUR INCHES** only.
Socket hole for shanks ⅛x⅛x1½ inches.
Extra socket to hold bit stock shanks provided with each drill without additional charge

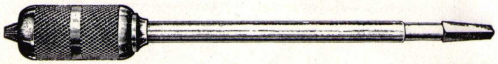
Nos.	10	12	14
Length of lever	10 in.	12 in.	14 in.
Weight, each	2½ lbs.	3 lbs.	3½ lbs
Price, each	**$4.00**	**$4.50**	**$5.00**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 1

WITH MASTER CHUCK



To be used in connection with a bit brace or breast drill.
NICKELED.
Bit shanks **TAPERED EXACTLY** to gauge.
MASTER chuck holding **ROUND** shanks from ¼ to ⅜ inch in diameter, **BIT STOCK, EXPANSION** and No. 1 **MORSE TAPER** shanks.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	18 lbs.	20 lbs.	23 lbs.	25 lbs.	27 lbs.

Price, all lengths, per dozen, **$12.50.**
Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 2

WITH BARBER CHUCK

With exception of Barber chuck, designed especially for bit stock shanks, the same as No. 1 Extension Bit Holder, shown next preceding.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	14 lbs.	16 lbs.	19 lbs.	21 lbs.	23 lbs.

Price, all lengths, per dozen, **$12.50.**
Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

Polished and **NICKEL PLATED** steel.
Chuck, a trifle **LESS THAN $\frac{3}{8}$ INCH IN DIAMETER, FOLLOWS BITS OF THIS SIZE AND LARGER INTO THEIR BORES.**
Clamps bit stock shanks rigidly between inner socket and lip of outer sleeve.
Bits inserted and extracted at will, easily and quickly.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	6 lbs.	7½ lbs.	9 lbs.	10½ lbs.	12 lbs.
Price, per dozen	**$15.00**	**$15.00**	**$15.00**	**$15.00**	**$17.50**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 4

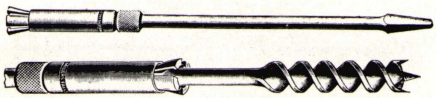
Follows into their bores bits $\frac{3}{4}$ inch in diameter and larger.
Except for being heavier, is of same general pattern as No. 3 Extension Bit Holder shown next preceding.

Length	15 in.	18 in.	24 in.
Weight, per dozen	10 lbs.	12½ lbs.	15 lbs.
Price, per dozen	**$17.50**	**$17.50**	**$20.00**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 5



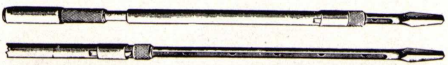
POLISHED AND NICKEL PLATED steel.
FOLLOWS BITS ⅜ INCH IN DIAMETER and larger **INTO THEIR BORES.**
Four **RELIABLY STRONG, STEEL JAWS,** made in one piece, grip firmly over shoulders of bit stock shanks.
Bit inserted or released instantly when desired
An unsurpassed tool for the purpose intended

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.
Price, per dozen	**$15.00**	**$15.00**	**$15.00**	**$15.00**	**$17.50**

Packed 1 in a pasteboard box.

TELESCOPE EXTENSION BIT HOLDER

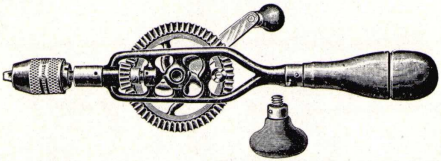
Nos. 6 and 7



POLISHED AND NICKEL PLATED steel.
Outer sleeve, telescoping over, and engaging at **ONE AND ONE-HALF INCH INTERVALS** upon inner spindle, combining **LIGHTNESS WITH STRENGTH.**
For description of chuck see Extension Bit Holders Nos. 3 and 5, shown previously.
Length, collapsed, 16½ inches.
Length, extended to the extreme, 24 inches.
Weight, per dozen (with pasteboard boxes), 13½ lbs.
No. 6, with chuck as on Extension Bit Holder No. 5, per dozen, **$30.00.**
No. 7, with chuck as on Extension Bit Holder No. 3, per dozen, **$30.00.**
Packed 1 in a pasteboard box.

HAND DRILL

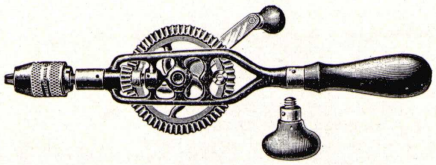
No. 1



COCOBOLO wood; malleable iron frame; large gear and frame black enameled; other metal parts nickeled.
HOLLOW END HANDLE, with screw cap, containing 8 wood boring points ranging in size from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter.
Removable side, grip handle.
CUT GEARS with adjustable equalizing bearing.
BALL THRUST BEARING.
Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{4}$ inch in diameter.
Length, $12\frac{1}{2}$ inches.
Weight, per dozen (with pasteboard boxes), 20 lbs.
Price, per dozen, including 8 fluted drill points, **$20.00.**
Price, per dozen, of fluted drill points, **$0.72.**
Price, per set (8), of fluted drill points, **$0.48.**
Packed 1 in a pasteboard box.

HAND DRILL

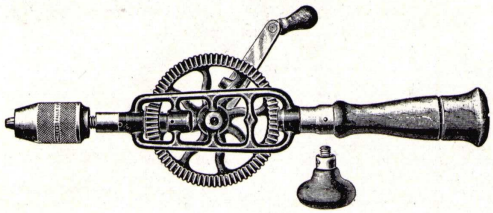
No. 01



Stained hardwood; black enameled, malleable iron frame; large gear enameled French gray with red stripe; other metal parts nickeled
Solid end handle; removable side, grip handle.
CUT GEARS with adjustable equalizing bearing.
BALL THRUST BEARING.
Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{4}$ inch in diameter.
Length, $12\frac{1}{2}$ inches.
Weight, per dozen (with pasteboard boxes), 16 lbs.
Price, per dozen, **$18.00.**
Packed 1 in a pasteboard box.

HAND DRILL

No. 2



COCOBOLO wood; malleable iron, black enameled frame; large gear painted red; other metal parts nickeled.

HOLLOW END HANDLE, with screw cap, shaped so tool may be used as a breast drill, and containing 8 wood boring points, ranging in size from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter.

Removable side, grip handle.

CUT GEARS with adjustable friction roll to equalize bearings.

BALL THRUST BEARING.

Chuck of Star pattern with 3 jaws opening with springs and **CLOSING EVENLY** on, and **CENTERING ACCURATELY**, round shanks from 0 to $\frac{3}{4}$ inch in diameter.

Length, 14$\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 29 lbs.

Price, per dozen, including 8 fluted drill points, **$40.00.**

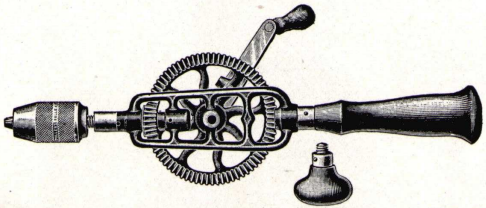
Price, per dozen, of fluted drill points, **$0.72.**

Price, per set (8), of fluted drill points, **$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL

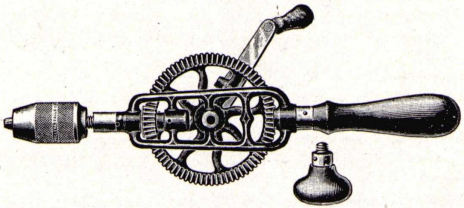
No. 2B



Stained hardwood; malleable iron, black enameled frame; large gear enameled French gray with red stripe; other metal parts nickeled.
Solid end handle shaped so tool may be used as a breast drill.
Removable side, grip handle.
CUT GEARS with adjustable friction roll to equalize bearings.
BALL THRUST BEARING.
Chuck of Star pattern with 3 jaws opening with springs and **CLOSING EVENLY** on, and **CENTERING ACCURATELY,** round shanks from 0 to $\frac{3}{8}$ inch in diameter.
Length, 14½ inches.
Weight, per dozen (with pasteboard boxes), 28 lbs.
Price, per dozen, **$34.00.**
Packed 1 in a pasteboard box.

HAND DRILL

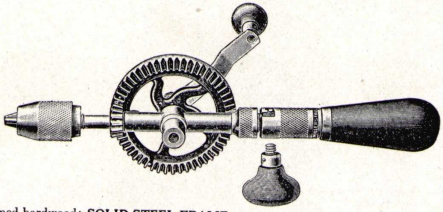
No. 02



The shape of end handle excepted, the same as Hand Drill No. 2B shown next preceding.
Length, 14 inches.
Weight, per dozen (with pasteboard boxes), 27 lbs.
Price, per dozen, **$34.00.**
Packed 1 in a pasteboard box.

HAND DRILL

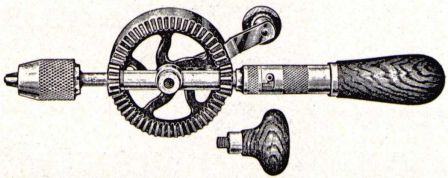
No. 3



Stained hardwood; **SOLID STEEL FRAME.**
Large gear enameled black; all other metal parts **NICKELED.**
Hollow end handle quickly detached and with receptacle large enough to hold any twist drills within the capacity of the tool.
Detachable side, grip handle.
CUT GEARS.
Three-jawed chuck holding round shanks from 0 to $\frac{3}{16}$ inch in diameter.
Length, 11 inches.
Weight, per dozen (with pasteboard boxes), 18 lbs.
Price, per dozen, **$16.00.**
Packed 1 in a pasteboard box.

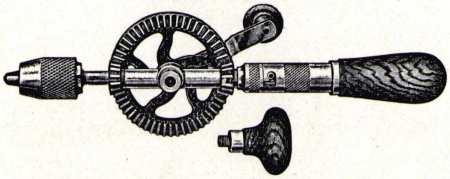
HAND DRILL

No. 3A



Stained hardwood; **SOLID STEEL FRAME.**
Large gear enameled French gray with red stripe; all other metal parts **NICKELED.**
Hollow end handle quickly detached and with receptacle large enough to hold any twist drills within the capacity of the tool.
Detachable side, grip handle.
CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done and with idler gear to equalize bearings.
Three-jawed chuck holding round shanks from 0 to $\frac{3}{16}$ inch in diameter.
Length, 11 inches.
Weight, per dozen (with pasteboard boxes), 20 lbs.
Price, per dozen, **$20.00.**
Packed 1 in a pasteboard box.

HAND DRILL
No. 03



Except that large gear does not have wide rim, the same as Hand Drill No. 3A, shown next preceding.

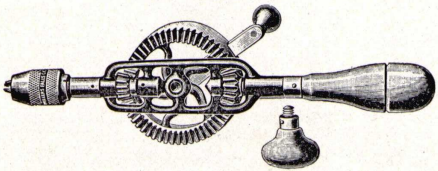
Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **$18.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 5



COCOBOLO wood; malleable iron frame; large gear red and frame black enameled; other metal parts nickeled.

HOLLOW END HANDLE, with screw cap, containing 8 wood boring points, ranging in size from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter.

Removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done, and with idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{1}{4}$ inch in diameter.

Length, 12$\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, including 8 fluted drill points with each drill, **$24.00.**

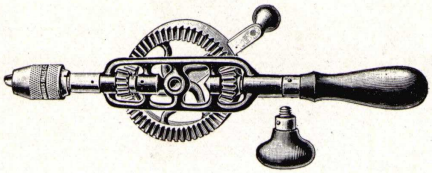
Price, per dozen, of fluted drill points, **$0.72.**

Price, per set (8), drill points, **$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 05



Stained hardwood; black enameled, malleable iron frame; large gear enameled French gray with red stripe; other metal parts nickeled.

Solid end handle; removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done and with idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shanks from 0 to $\frac{1}{4}$ inch in diameter.

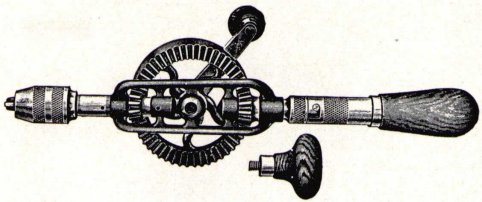
Length, 12½ inches

Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **$21.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 5F



Stained hardwood handles; black japanned, malleable iron frame, gear enameled French gray with red stripe.

HOLLOW END HANDLE with receptacle large enough to hold twist drills within the capacity of the chuck of the tool.

Removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between the thumb and fingers when delicate work is being done; idler gear to equalize bearings.

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, 13 inches.

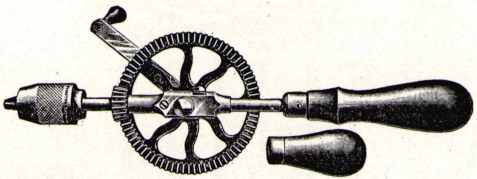
Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, **$22.00**.

Packed 1 in a pasteboard box

HAND DRILL

No. 7



Stained hardwood handles; **SOLID STEEL FRAME;** metal parts **POLISHED,** excepting black enameled large gear.

CUT GEARS; diameter of large gear 4 inches.

Three-jawed chuck holding round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, 12$\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 23 lbs.

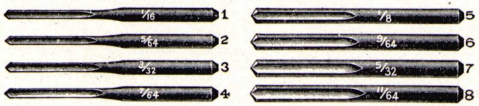
Price, per dozen, including 8 fluted points with each drill, **$27.50.**

Price, per dozen, of fluted points, **$0.72.**

Price, per set, of 8 fluted points, **$0.48.**

Packed 1 in a pasteboard box.

HAND DRILL POINTS



For use in wood and soft metals only. A set furnished with Drills Nos. 1, 2, 5, and 7

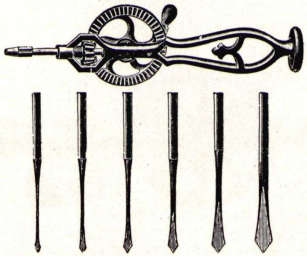
Price, per set, **$0.48.**

Price, per dozen, **$0.72.**

Packed 1 set, or 1 dozen, in a wooden box.

HAND DRILL

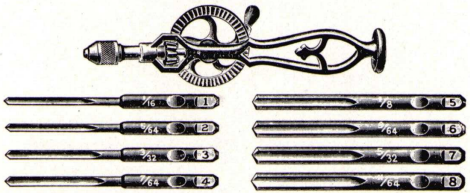
No. 4



Black enameled, cast iron frame and gears.
Steel spindle.
Chuck holding drill points as shown in illustration, which are supplied in a wooden box.
Length, 8 inches.
Weight, per dozen (with pasteboard boxes), 7½ lbs.
Price, per dozen, with 6 drill points with each drill, **$6.30.**
Price, per set, of 6 drill points, **$0.25.**
Packed 1 in a pasteboard box.

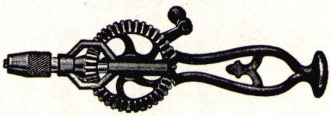
HAND DRILL

No. 04



Black enameled, cast iron frame and gears.
Steel spindle.
Nickeled chuck holding drills as shown in illustration.
Drills range from $\frac{1}{16}$ to $\frac{1}{4}\frac{1}{2}$ inch in diameter, are for boring in wood and soft metal and are put up in a wooden box.
Length, 8 inches.
Weight, per dozen (with pasteboard boxes), 9 lbs.
Price, per dozen, with 8 drill points with each drill, **$12.00.**
Price, per dozen, of drill points, **$0.72.**
Price, per set, of 8 drill points, **$0.48.**
Packed 1 in a pasteboard box.

HAND DRILL
No. 4D



Designed especially for manual training use.

Selected hardwood handle; cast iron frame and large gear enameled French gray.

Steel spindle.

NICKELED two-jawed chuck holding straight shank drills from $\frac{1}{64}$ to $\frac{1}{4}$ inch in diameter

Length, 8 inches.

Weight, per dozen (with pasteboard boxes), 8 lbs.

Price, per dozen, **$10.50.**

Packed 1 in a pasteboard box.

D HANDLE FOR BREAST DRILLS

Fits Breast Drills Nos. 10, 10A, 11, 12, 12A, 012, 13, 13A, 15, 15A, 18, 19, 25, 29, 130, 190, and 290.

Price, per dozen, **$4.00.**

Can be substituted for Breast Plates at regular prices.

SPECIAL ATTENTION is hereby called to the new SERIES of BREAST DRILLS illustrated on the following pages, to wit:

Breast Drills designated as numbers 84, 85, 86, 87, 94, 95, 96, 97. Each of these numbers has its distinctive operations, though all are constructed on the same general plan. There is no drill on the market approaching them in point of efficiency or variety of performances. While there are drills performing some of the functions, the methods employed in all the drills we have seen have been subjected to so much friction in operation that the power has been sacrificed. We have, however, so constructed our Drills as to eliminate this objection by running each driving gear on its own independent bearing, thus adding about 30% to the power, and we would invite a careful comparison by way of actual test in demonstrating this fact.

We have tested these Drills in special machines made for the purpose, putting them through more operations than they would be subject to in a lifetime, and in every instance they have stood up perfectly under the test. The devices employed for acquiring the ratchet and onward movement and independent bearings are entirely original and secured by Letters Patent.

BREAST DRILL

No. 87

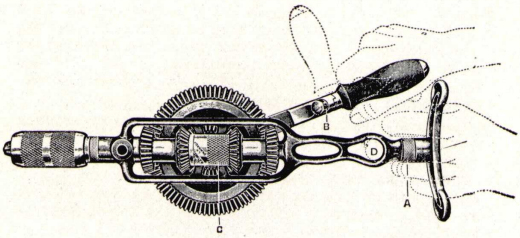


FIG. X

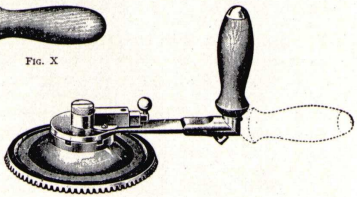


FIG. V

FIG. Y

Capable of performing a number of different movements, all of which are desirable and ingenious.

Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate enameled French gray with red trimmings; other metal parts nickeled.

BREAST DRILL No. 87—(Continued)

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in main illustration on preceding page, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND. AUXILIARY** breast plate, as in Figure Y, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

Ratchet adjustment C with **POSITIVE MECHANISM** allowing **ACTION WITHOUT RATCHET,** as an ordinary breast drill,
RIGHT HAND RATCHET ACTION,
LEFT HAND RATCHET ACTION,
CONTINUOUS RIGHT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE RIGHT WHETHER CRANK IS MOVED FORWARD OR BACKWARD,**
CONTINUOUS LEFT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE LEFT WHETHER CRANK IS MOVED FORWARD OR BACKWARD**

Crank handle **ADJUSTABLE TO TWO POSITIONS:** one, **AT RIGHT ANGLES TO CRANK,** the other, **IN LINE WITH THE CRANK,** as shown in main illustration, which is of advantage in cramped quarters and increases the power of the crank. Change of position is accomplished by inserting pin shown on the end of handle in Figure X into hole in screw B, as shown in the main illustration, and using the pin as a wrench to loosen the screw. Handle in Figure X is primarily intended to be screwed into the main frame at a point between the chuck and gears and to be used in steadying the tool.

TWO SPEEDS, $2\frac{1}{4}$ to 1 and even; **INSTANTLY CHANGEABLE** by means of the knob shown in Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.**

By the same knob the gears can be **LOCKED FOR TIGHTENING OR LOOSENING THE CHUCK.**

DOUBLE GEARED; CUT TEETH; small gears of **STEEL.**

BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 96 lbs.
Weight of auxiliary breast plate (included in weight given next above), $\frac{1}{2}$ lb.
Length, 17 inches.
Price, per dozen, **$75.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 84

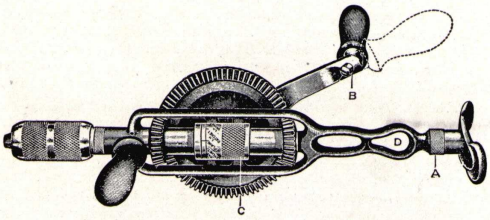


FIG. X

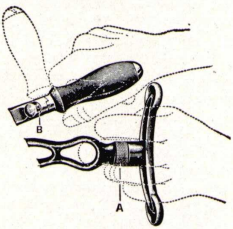


FIG. T

The same as Breast Drill No. 87, shown next preceding, except that it does not have the changeable speed.

FIG. Y

Weight, per dozen (with pasteboard boxes), 93 lbs.
Weight of auxiliary breast plate (included in weight given next above), ½ lb.
Length, 17 inches.
Price, per dozen, $66.00.
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 86

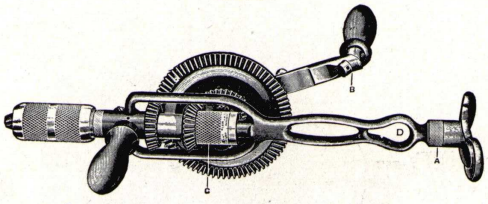


FIG. X

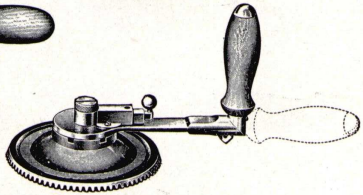


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the ratchet mechanism does not have the continuous onward movements.

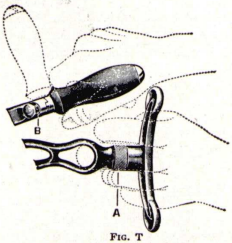


FIG. T

Weight, per dozen (with pasteboard boxes), 91 lbs.

Weight of auxiliary breast plate (included in weight given next above), ½ lb.

Length, 17 inches.

Price, per dozen, **$60.00.**

Packed 1 in a pasteboard box and 1 dozen in a case

FIG. Y

BREAST DRILL
No. 97

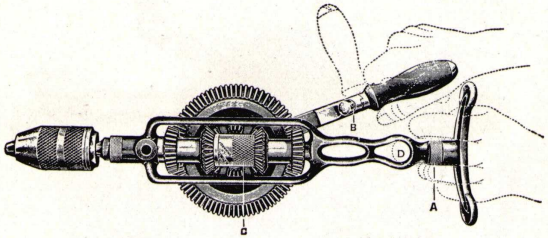


FIG. X

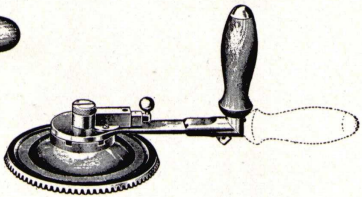


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the chuck is of the Star pattern holding round shanks only from 0 to ¼ inch in diameter.

FIG. Y

Weight, per dozen (with pasteboard boxes), 99 lbs.
Weight of auxiliary breast plate (included in weight given next above), ½ lb.
Length, 17½ inches.
Price, per dozen, **$80.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 94

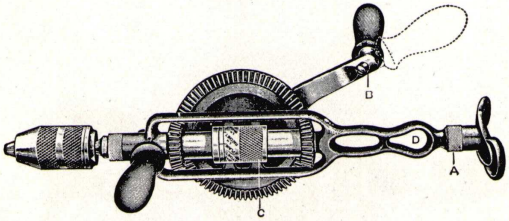


FIG. X

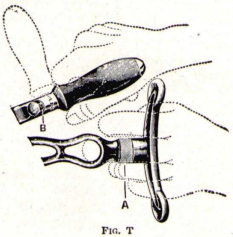


FIG. T

The same as Breast Drill No. 87, shown preceding, except that it does not have a changeable speed and, instead of the Master chuck, has one of the Star pattern made especially to hold round shanks only from 0 to ½ inch in diameter.

FIG Y

Weight, per dozen (with pasteboard boxes), 96 lbs.
Weight of auxiliary breast plate (included in weight given next above), ½ lb.
Length, 17½ inches.
Price, per dozen, **$70.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 96

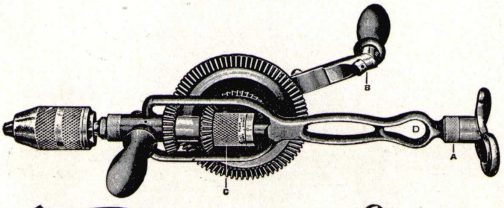


FIG. X

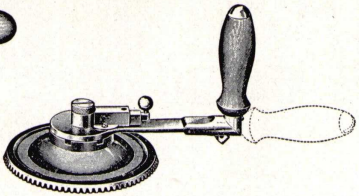


FIG. V

This tool is provided with a Star chuck made especially to hold round shanks from 0 to ½ inch in diameter and its ratchet mechanism does not have the continuous onward movements. In other respects it is the same as Breast Drill No. 87, shown preceding.

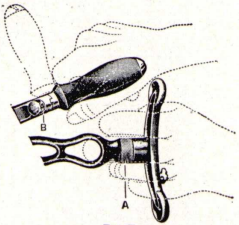


FIG. T

Weight, per dozen (with pasteboard boxes), 95 lbs.

Weight of auxiliary breast plate (included in weight given next above), ½ lb.

Length, 17½ inches.

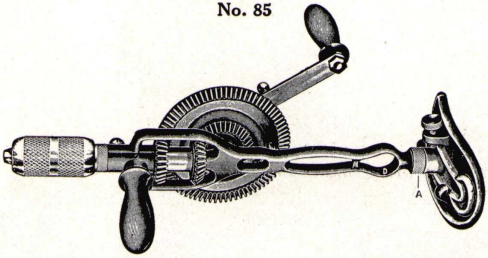
Price, per dozen, **$64.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

FIG. Y

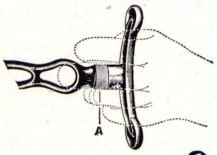
BREAST DRILL

No. 85



Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate enameled French gray with red trimmings; other metal parts nickeled.

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in illustration, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND.** **AUXILIARY** breast plate, attached in main illustration above, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**



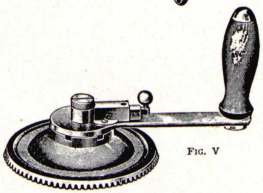


FIG. V

TWO SPEEDS, 2¾ to 1 and even; **INSTANTLY CHANGEABLE** by means of the knob shown in Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.** By the same knob the gears can be **LOCKED FOR TIGHTENING OR LOOSENING THE CHUCK.**

GEARS WITH CUT TEETH; small gears of **STEEL.**

BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from ⅛ to ½ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 83 lbs.

Weight of auxiliary breast plate (included in weight given next above), ½ lb.

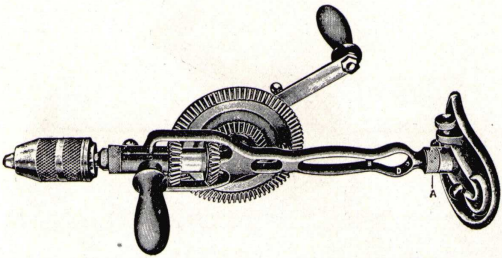
Length, 17 inches.

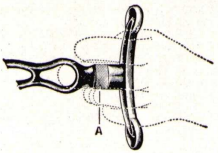
Price, per dozen, **$50.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 95





The same as Breast Drill No. 85, described next preceding, except that, instead of the Master Chuck, it has one of the **STAR** pattern made especially to hold round shanks only from 0 to ½ inch in diameter.

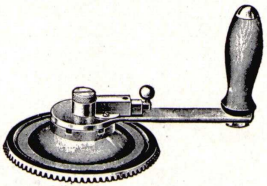


FIG. V

Weight, per dozen (with pasteboard boxes), 84 lbs.

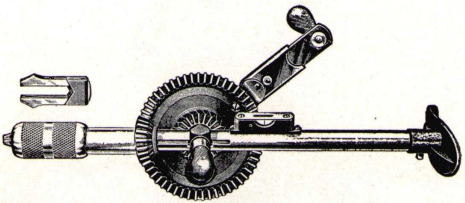
Weight of auxiliary breast plate (included in weight given next above), ½ lb.

Length, 17½ inches.

Price, per dozen, $54.00.

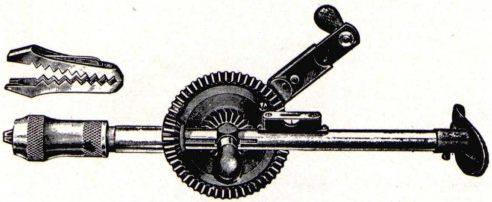
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 10



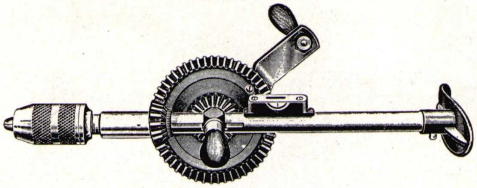
COCOBOLO handles; **SOLID STEEL FRAME**; large gear painted black with gilt stripe; under side of breast plate painted red; other metal parts **POLISHED AND NICKELED.**
Breast plate **ADJUSTABLE** to different positions or removable.
EXTENSIBLE CRANK with radius from 5½ to 7 inches, **ADDING POWER** to the tool.
Patent **LEVEL** attachment.
CUT GEARS with **CHANGEABLE SPEED** from even to 3 to 1.
BALL THRUST BEARING.
MASTER CHUCK holding **ROUND** shanks from ⅛ to ½ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.
Length, 17 inches.
Weight, per dozen (with pasteboard boxes), 78 lbs.
Price, per dozen, **$47.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 10A



The same as Breast Drill No. 10, shown next preceding, excepting chuck which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Length, 17½ inches.
Weight, per dozen (with pasteboard boxes), 74 lbs.
Price, per dozen, **$47.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 11



COCOBOLO handles; **SOLID STEEL MAIN STOCK;** large gear enameled black with gilt stripe; under side of breast plate painted red; other metal parts **POLISHED AND NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL** attachment.

CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS.

BALL THRUST BEARING.

Three-jawed chuck of the Star pattern, holding, and centering accurately, round shanks only from 0 to $\frac{3}{8}$ inch in diameter

Length, 15 inches.

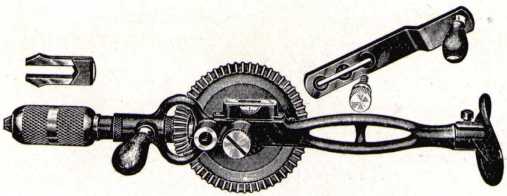
Weight, per dozen (with pasteboard boxes), 65 lbs.

Price, per dozen, **$47.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 12 Improved



COCOBOLO handles; large gear and breast plate painted green and malleable iron main stock enameled black; chuck and crank **NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT.**

CUT GEARS; large gear with **IDLER ROLL** to equalize bearings.

BALL THRUST BEARING.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING TO THE POWER** of the tool.

CHANGEABLE SPEED from even to 3 to 1.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{3}{8}$ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks.

Length, 17½ inches.

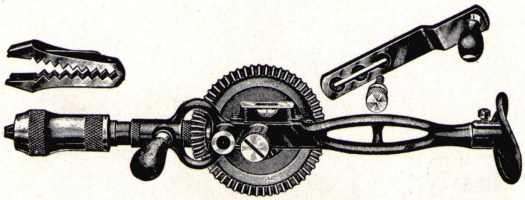
Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 12A



The same as Breast Drill No. 12, shown next preceding, excepting that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**

Length, 17½ inches.

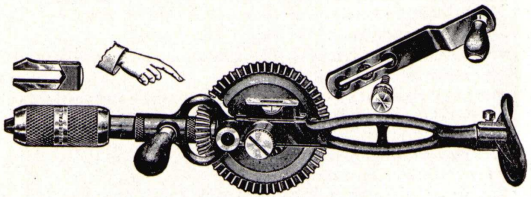
Weight, per dozen (with pasteboard boxes), 75 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 012



The same as Breast Drill No. 12 shown preceding, excepting latch, as indicated with hand in illustration, for locking the gears when inserting a bit into, or removing it from, the chuck.

Length, 17½ inches.

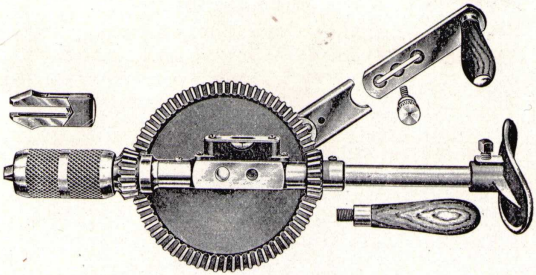
Weight, per dozen (with pasteboard boxes), 80 lbs.

Price, per dozen, **$43.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 13



COCOBOLO handles; **SOLID STEEL MAIN STOCK;** large gear and under side of breast plate painted red; other metal parts **POLISHED AND NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

EXTENSIBLE CRANK with radius of 5½ to 7 inches, **ADDING TO POWER** of the tool.

CUT GEARS; large gear 6 inches in diameter, giving speed of 4½ to 1; idler gear to **EQUALIZE BEARINGS.**

Patent **LEVEL ATTACHMENT.**

BALL THRUST BEARING.

MASTER CHUCK holding, and centering with reasonable accuracy, **ROUND** shanks from ⅛ to ½ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks.

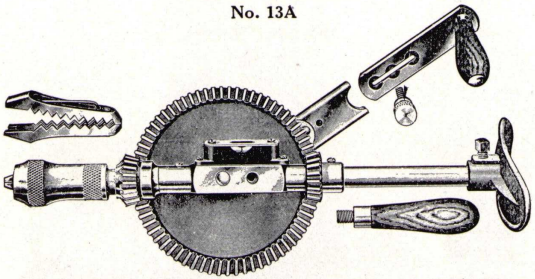
Length, 15 inches.

Weight, per dozen (with pasteboard boxes), 70 lbs.

Price, per dozen, **$55.00.**

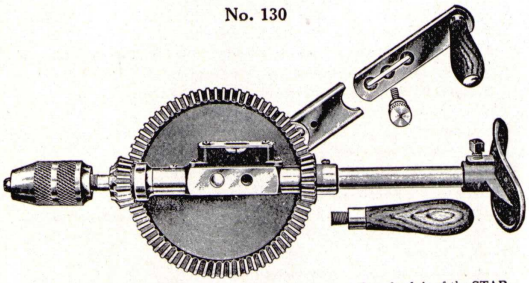
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 13A



The same as Breast Drill No. 13, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Length, 15 inches.
Weight, per dozen (with pasteboard boxes), 66 lbs.
Price, per dozen, **$55.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

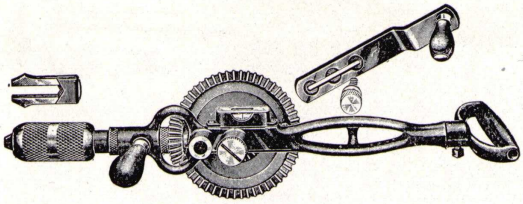
BREAST DRILL
No. 130



The same as Breast Drill No. 13, shown preceding, except that chuck is of the **STAR** pattern, with three jaws, made especially for holding round shanks only from 0 to $\frac{1}{2}$ inch in diameter.
Length, 15 inches.
Weight, per dozen (with pasteboard boxes), 72 lbs.
Price, per dozen, **$63.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 15



Wood handles **COCOBOLO;** large gear painted green and D shaped handle and malleable iron main stock enameled black; chuck and crank **NICKELED.**

D handle **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT.**

CUT GEARS; large gear with idler roll to equalize bearings.

BALL THRUST BEARING.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING POWER** to the tool.

CHANGEABLE SPEED from even to 3 to 1.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{4}$ to $\frac{3}{8}$ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.

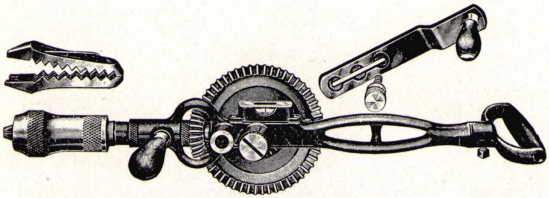
Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 15A



The same as Breast Drill No. 15, shown next preceding, excepting chuck, which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**

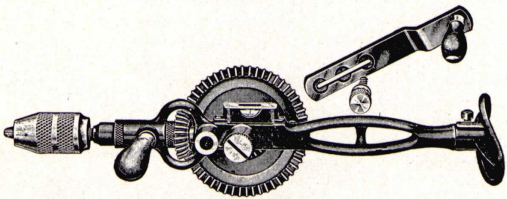
Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 75 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILL
No. 18



Same as Breast Drill No. 15, shown preceding, except that chuck is of the **STAR** pattern with three jaws, made especially for holding round shanks from 0 to ¼ inch in diameter, and that breast plate is provided instead of D handle.

Length, 17¼ inches

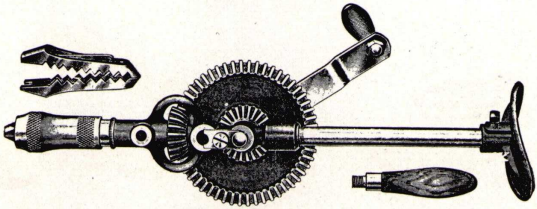
Weight, per dozen (with pasteboard boxes), 81 lbs

Price, per dozen, **$47.00.**

Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILLS

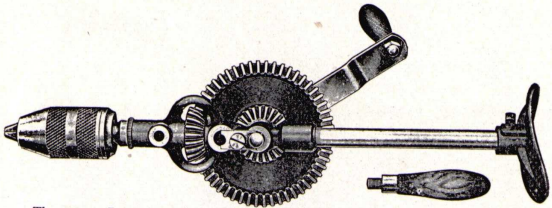
Nos. 19 and 190



Stained hardwood handles; black enameled, cast iron frame; **ROLLED STEEL MAIN STOCK;** large gear painted red.
Breast plate **ADJUSTABLE** to different positions.
ADJUSTABLE CRANK with radius of 4 to 7 inches, **ADDING POWER** to the tool.
CUT GEARS.
BALL THRUST BEARING.
CHANGEABLE SPEED from even to 3 to 1.
BARBER IMPROVED chuck with **ALLIGATOR JAWS** holding bit stock and many sizes of round shanks.
Length, 18 inches.
Weight, per dozen (with pasteboard boxes), 74 lbs.
No. 19 (polished), per dozen, **$27.00.**
No. 190 (nickeled), per dozen, **$32.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILLS

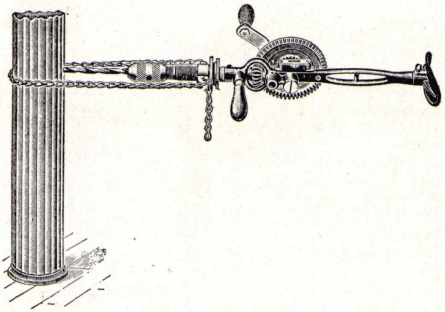
Nos. 29 and 290



The same as Breast Drills Nos. 19 and 190, shown next preceding, except that chuck is of the **STAR** pattern with three jaws holding round shanks from 0 to ½ inch in diameter.
Length, 18½ inches.
Weight, per dozen (with pasteboard boxes), 78 lbs.
No. 29 (polished), per dozen, **$35.00.**
No. 290 (nickeled), per dozen, **$40.00.**
Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILL

No. 25



COCOBOLO handles; black enameled, malleable iron frame; gear and breast plate painted green; other metal parts **NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT.**

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING POWER to the** tool.

CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS; IDLER ROLL to equalize bearings.

BALL THRUST BEARING.

MASTER CHUCK, holding **ROUND** shanks from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.

AUTOMATIC, ADJUSTABLE FEED.

Three feet of stout chain.

May be used as an ordinary breast drill without the chain.

Length, 20 inches.

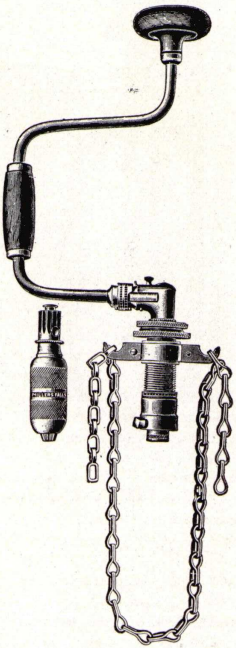
Weight, per dozen (with pasteboard boxes), 98 lbs.

Price, per dozen, **$60.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

COMBINATION BRACE AND CHAIN DRILL

No. 50



Comprises two tools: Ratchet Bit Brace and Chain Drill.

(1) Ratchet Bit Brace with ten inch sweep:

POLISHED AND NICKELED steel and **COCOBOLO** wood.

BALL-BEARING head and **ADJUSTABLE, FREE ACTING** sweep handle.

Covered ratchet teeth.

MASTER chuck, holding **ROUND, BIT STOCK,** and No. 1 Morse **TAPER** shanks.

(2) Chain Drill:

Durable **NICKELED** steel and cast iron.

BALL-BEARING.

Instantly **INTERCHANGEABLE** with brace chuck.

ADJUSTABLE AUTOMATIC FEED.

Plain socket ½ inch in diameter. Four feet of heavy chain.

Length, 17 inches.

Weight, per dozen (with pasteboard boxes), 82 lbs.

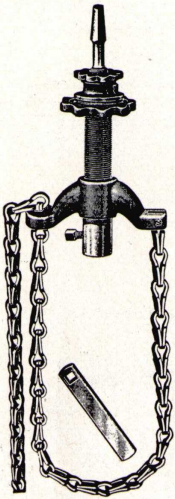
Price, per dozen, **$55.00.**

Packed 1 in a pasteboard box.

DRILL SOCKET A

To be used with No. 50 Brace and Chain Drill, shown above, to hold bit stock shanks.

Price, each, **$0.30.**



CHAIN DRILL
No. 717

Yoke and nuts japanned; socket and bit shank nickeled.

AUTOMATIC, SELF-REGULATING FEED or may be fed by hand.

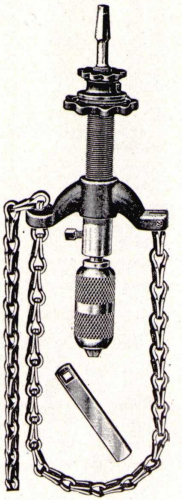
FOUR FEET of stout chain.

Length of main spindle, 8½ inches.

Weight, 3½ lbs.

Price, **$1.60.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 718

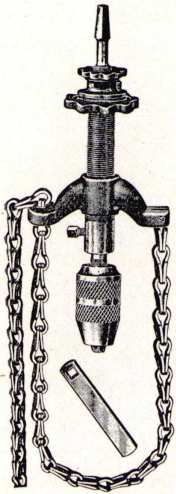
Same as Chain Drill No. 717, shown next preceding, except that **MASTER CHUCK** is added for holding **ROUND** shanks from ⅛ to ½ inch in diameter, **BIT STOCK,** and No. 1 Morse **TAPER** shanks.

Length, with chuck inserted, 11½ inches.

Weight, 4½ lbs.

Price, **$3.00.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 719

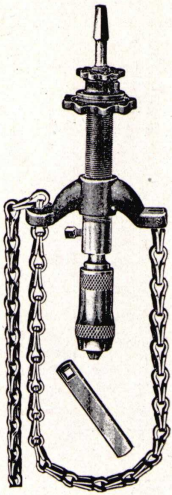
Same as Chain Drill No. 717, shown preceding, excepting that **STAR** chuck is provided for holding round shanks from 0 to ½ inch in diameter.

Length, with chuck inserted, 11¾ inches

Weight, 4½ lbs

Price, **$4.25.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 720

Same as Chain Drill No. 717, shown preceding, except that **BARBER IMPROVED** chuck is provided, made especially for holding bit stock shanks and many sizes of round shanks.

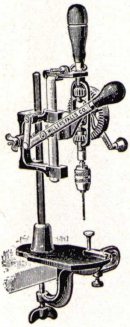
Length, with chuck inserted, 11½ inches.

Weight, 4½ lbs.

Price, **$3.00.**

Packed 1 in a pasteboard box.

BENCH DRILL PRESS
No. 22



A simply constructed standard and fixtures to hold any of our hand drills excepting Nos. 4, 04, 4D, and 7.

Steel and iron japanned.

SENSITIVE, compound lever feed.

ADJUSTABLE CLAMP to hold drill

Height between chuck and table, when former is raised to its highest point, varying from 6½ to 7½ inches according to drill used.

Height of standard above bench, 15½ inches

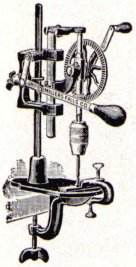
Weight (with pasteboard box), 8 lbs.

Price of frame only, **$2.25.**

Note:—For prices of drills see Hand Drills.

Packed 1 in a pasteboard box.

BENCH DRILL PRESS
No. 23



Drilling attachment permanently affixed.

STAR chuck holding, and centering accurately, round shanks from 0 to ¾ inch in diameter.

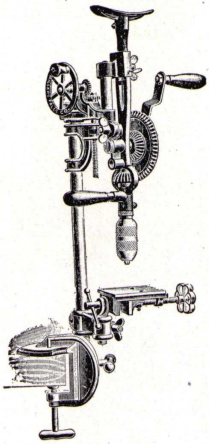
Distance from chuck to table, when former is raised to highest point, 6½ inches.

Otherwise the same as Bench Drill Press No. 22, shown next preceding.

Weight (with pasteboard box), 9 lbs.

Price, **$4.50.**

Packed 1 in a pasteboard box.



UNIVERSAL HAND DRILL PRESS

No. 20

A standard and fixtures to hold our Breast Drills Nos. 10, 10A, 11, 12, 12A, 012, and 18.

SENSITIVE hand feed.

Drill may be swiveled into many positions and clamped at varying heights, either above or below the bench.

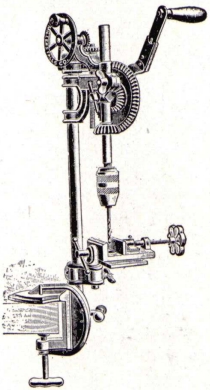
Vise swung on pin **OFF CENTER**, permitting its use in many positions; may be used horizontally, on an angle, or reversed and table turned uppermost.

Height of standard, 24 inches.

Weight, boxed, 28 lbs.; net, 19 lbs.

Price, **WITHOUT BREAST DRILL**, each, **$5.00.**

Packed 1 in a case.



UNIVERSAL HAND DRILL PRESS

No. 21

Drilling attachment permanently affixed.

CHANGEABLE SPEED from even to 3 to 1.

EXTENSIBLE CRANK with radius from 5 to 6½ inches.

STAR CHUCK for round shanks from 0 to ½ inch in diameter.

Otherwise the same as Hand Drill Press No. 20, shown next preceding.

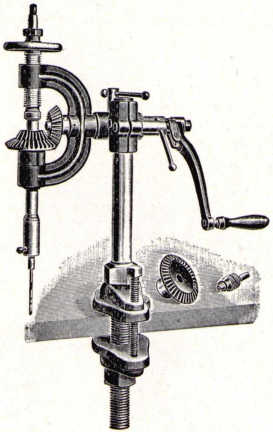
Weight, boxed, 30 lbs.; net, 21 lbs.

Price, complete, **$9.00.**

Packed 1 in a case.

For parts and their prices see page 64.

ANGULAR AND RATCHET DRILLING MACHINE



Steel standards, shafts, and spindles; iron frame, crank and bench clamp; malleable iron gears.

Attachable either to bench or to object to be drilled.

Drills vertically or at any angle desired, above or below bench.

Extensible from standard outward: No. 1 machine, 4½ to 5¾ inches; No. 2, 6 to 8 inches; and No. 3, 7 to 10½ inches.

Hand feed.

Ratchet attachment.

Socket hole in spindle for ½-inch round shanks but bored to order for ¾-inch without extra charge.

One ¼-inch drill to fit socket and Star chuck to hold round shanks from 0 to ½ inch in diameter supplied with each machine, without extra charge; omitted when machine is made to order with taper socket.

ANGULAR AND RATCHET DRILLING MACHINE—(Continued)

No. 1, Speeded; ball bearing. Drills hole up to ⅜ inch.

No. 2, With two sets of gears making either speeded or geared back; hardened anti-friction bearings. Drills hole up to 1 inch.

No. 3, Geared back; hardened anti-friction bearings. Drills hole up to 1½ inches.

Nos.	1	2	3
Height of standard	25½ in.	25½ in.	28½ in.
Weight, boxed	50 lbs.	86 lbs.	135 lbs.
Weight, net	34 lbs.	68 lbs.	108 lbs.
Price	**$16.00**	**$20.00**	**$30.00**

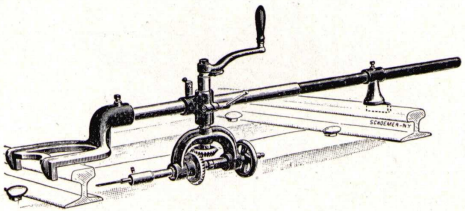
To order with hole for taper socket, extra, net, **$1.50.**

Note:—When ordering state size of taper wanted.

For prices of parts see page 65.

TRACK DRILL

No. 5



Steel standards, shafts, and spindles; iron frame, crank and track rests; malleable iron gears.

Socket for round shanks ½x2½ inches but bored ⅝ inch without extra charge.

One ¼-inch drill to fit regular socket provided with each machine, also a Star chuck to hold round shanks from 0 to ½ inch in diameter; omitted when socket is made for taper shanks.

Two sets of gears making machine speeded or geared back.

Drills up to 1-inch hole.

Weight, boxed, 95 lbs.; net, 68 lbs. Price, **$24.00.**

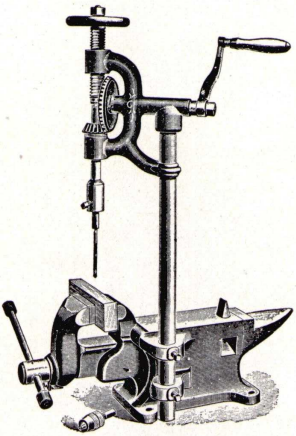
Made to order with taper socket, extra, net, **$1.50.**

Note:—When ordering state size of taper wanted.

Packed 1 in a wooden box.

For price of parts see page 65.

ANVIL, VISE, AND DRILL



(1) Drilling Attachment

Steel standards and spindle, hand feed; socket hole ½ inch in diameter; provided with one ¼-inch drill to fit socket hole and **EXTRA CHUCK** to hold round shanks from 0 to ½ inch in diameter; attachment may be swung away from vise and work done below the bench; height of standard, 24 inches.

(2) Vise:

Of best material and construction; jaws 3½ inches wide with **INSERTED STEEL FACES.**

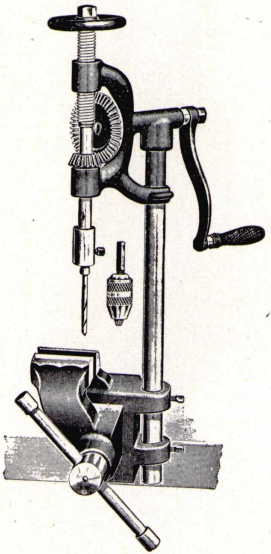
(3) Anvil:

Steel face, 4 x 8 inches; hardie provided.

	Anvil, Vise, and Drill	Anvil and Vise	Drilling Attachment
Weight, net.....	80 lbs.	60 lbs.	20 lbs.
Price.....	**$24.00**	**$13.50**	**$10.50**

Packed 1 in a wooden box

VISE AND DRILL

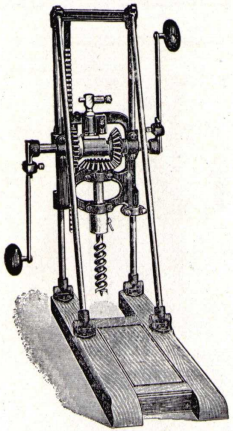


Similar to that shown in connection with Anvil, Vise, and Drill next preceding, except that vise is offset to give clearance for drilling.

	Weight	Price
Offset Vise and Drill	61 lbs.	**$19.50**
Offset Vise only	41 lbs.	**9.00**
Drilling Attachment	20 lbs.	**10.50**

Packed 1 in a wooden box.

MILLERS FALLS BORING MACHINE



Wood bottom board; upright and angle rods, spindle and cranks made of steel.

Bores vertically or **AT ANY ANGLE** from the vertical **WITHIN AN ARC** of 50°

Depth of hole regulated by stop.

Auger removed from hole by pushing a latch and continuing revolution of cranks in same direction as when boring.

Frame locked in topmost **SUSPENSION AUTOMATICALLY**; released by pressure upon a thumb latch.

ADJUSTABLE CRANKS regulating speed and power.

Regularly made to bore 12 inches but made to order for greater depths at small additional charge.

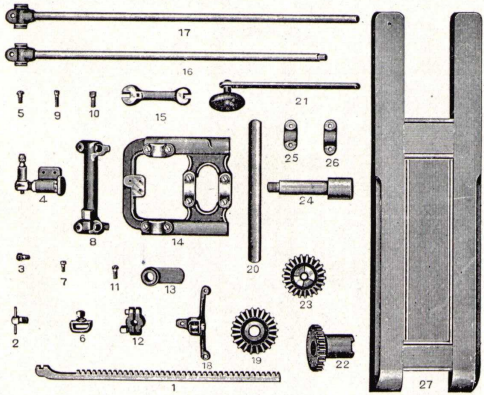
Height, 25 inches. Weight, boxed, 45 lbs.; net, 28 lbs.

Price, without augers, **$10.00.**

Packed 1 in a wooden box.

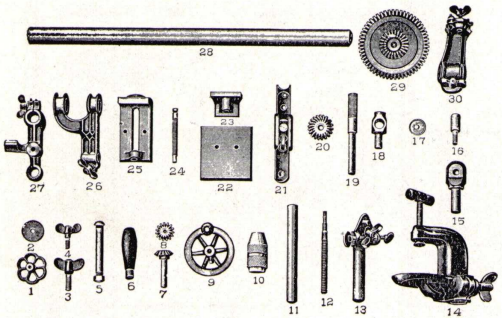
Augers in sets.....	18	23	41 quarters.
Price, per set.....	**$4.50**	**$5.50**	**$10.25**
Sizes.....	1, 1¼, 2 in.	1, 1¼, 1½, 2 in.	¼, ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 1¾, 2 in.

PARTS OF BORING MACHINE AND THEIR PRICES



1	Rack	$0.30
2	Chuck Set Screw	.10
3	Short Rod Set Screw	.05
4	Catch, complete	.75
5	Spider Screw	.05
6	Handle Clamp, complete	.15
7	Arbor Cap Screw	.05
8	Top Cap	.50
9	Catch Screw and Rack Screw	.05
10	Long Rod Set Screw	.05
11	Spindle Cap Screw	.05
12	Stop, complete	.35
13	Crank Casting	.15
14	Frame	2.50
15	Wrench	.15
16	Short Rod, complete	.40
17	Long Rod, complete	.40
18	Spider, complete	.40
19	Spindle Gear	.35
20	Arbor	.15
21	Adjustable Crank, complete	.45
22	Rack Gear	.45
23	Arbor Gear	.45
24	Chuck Spindle	1.00
25	Arbor Cap	.15
26	Spindle Cap	.15
27	Table	1.00

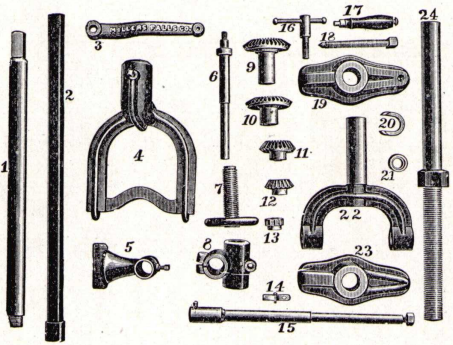
PARTS OF DRILL PRESSES NOS. 20 AND 21 AND THEIR PRICES



1	Vise Wheel	$0.10
2	Fiber Washer	.05
3	Bench Clamp Binder Screw	.10
4	Frame Thumb Screw and Vise Arm Thumb Screw	.10
5	Crank Handle Bolt and Nut	.10
6	Crank Handle	.10
7	Arbor and Gear	.15
8	Spindle Gear	.10
9	Feed Wheel, complete	.30
10	Star Chuck	1.30
11	No. 21 Attachment Frame	.30
12	Feed Screw	.25
13	No. 20 Attachment, complete	.50
14	Bench Clamp, complete	.55
15	Swivel	.30
16	Vise Swivel Screw	.25
17	No. 21 Attachment Gear Screw	.10
18	No. 21 Attachment Gear Stud	.30
19	No. 21 Attachment Spindle	.40
20	No. 21 Attachment Pinion	.30
21	No. 21 Attachment Crank, complete	.40
22	Vise Table	.15
23	Vise Short Jaw	.25
24	Vise Feed Screw	.15
25	Vise Long Jaw	.30
26	Lower Frame, complete	.50
27	Upper Frame, complete	.45
28	Standard	.40
29	No. 21 Attachment Large Gear	.50
30	Vise Arm, complete	.40

PARTS AND PRICES OF

ANGULAR DRILLING MACHINES AND TRACK DRILL



PART.		No. 1.	No. 2.	No. 5.	No. 3.
1	Standard	....	....	$0.80	....
2	Standard Extension	....	....	.50	....
3	Crank	$0.65	$0.80	.80	$1.30
4	Track Shoe	....	....	1.60	....
5	Sliding Rest	....	....	.30	....
6	Cross Shaft	1.30	1.60	1.60	2.50
7	Feed Wheel	.80	1.00	1.00	1.60
8	Double Joint	1.60	2.00	2.00	3.20
*9	Large Gear	.65	.80	.80	1.30
*10	Gear	....	.55	.55	....
*11	Gear	.35	.50	.50	.70
*12	Gear	....	.50	.50	....
13	Ratchet Gear	.30	.40	.40	.65
14	Ratchet Dog	.15	.20	.20	.30
15	Drill Spindle	1.45	1.80	1.80	3.00
16	Double Joint Screw	.80	1.00	1.00	1.60
17	Crank Handle and Bolt	.15	.20	.20	.30
18	Clamp Screw	.25	.30	.30	.50
19	Upper Clamp	.40	.50	.50	.80
20	Yoke	....	.30	.30	....
21	Ball-bearing Cup	.15	.20	....	.30
22	Fork Arm	2.10	2.60	2.60	4.10
23	Lower Clamp	.40	.50	.50	.80
24	Standard and Nut	1.60	2.00	2.00	3.20

In ordering parts, state weight of part wanted as well as number. that we may determine whether for Machine No. 1, 2, 3, or 5.

*In ordering gears state diameter and number of teeth.

AUTOMATIC BORING TOOLS

No. 3

No. 3

All metal, **NICKELED.**

Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter in wooden box.

Chuck with **POSITIVE GRIP.**

Length, 10 inches.

Weight, per dozen (with tin boxes), $7\frac{1}{2}$ lbs.

Price, per dozen, **$14.00.**

Packed 1 in a tin box.

No. 4

COCOBOLO handle; metal parts **NICKELED.**

Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, each in a **SEPARATE CELL** in end of handle.

Chuck with **POSITIVE GRIP.**

Length, 11 inches.

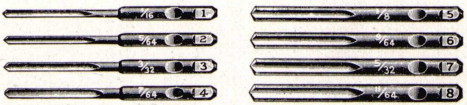
Weight, per dozen (with pasteboard boxes), $7\frac{1}{2}$ lbs.

Price, per dozen, **$16.00.**

Packed 1 in a pasteboard box.

No. 4

BORING TOOL POINTS, NEW PATTERN



Price, per set (8 points), **$0.48;** per dozen, **$0.72.**

Packed 1 set or 1 dozen in a wooden box.

AUTOMATIC BORING TOOLS

No. 5

No. 5

COCOBOLO handle; metal parts **NICKELED.** Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter in wooden box.

Chuck with **POSITIVE GRIP.**

Length, $10\frac{1}{2}$ inches.

Weight, per dozen (with tin boxes), $8\frac{1}{2}$ lbs.

Price, per dozen, **$14.00.**

Packed 1 in a tin box.

No. 6

COCOBOLO handle; metal parts **NICKELED.** Eight drill points from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, each in a **SEPARATE CELL** in handle and **RELEASED WITHOUT DISTURBING OTHERS.**

Chuck with **POSITIVE GRIP.**

Length, 11 inches.

Weight, per dozen, 7 lbs.

Price, per dozen, **$17.00.**

Packed 1 in a pasteboard box.

No. 7

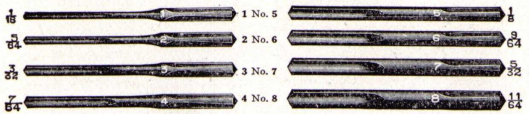
Same as No. 6, shown next preceding, except that handle is of stained hardwood.

Price, per dozen, **$16.00.**

Packed 1 in a pasteboard box.

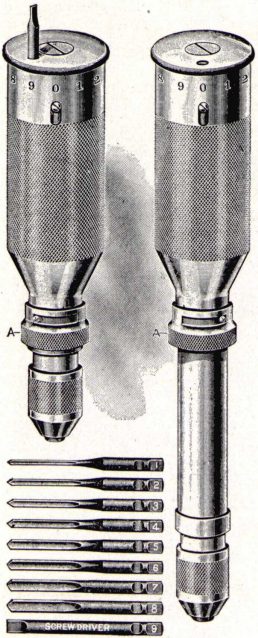
Nos. 6 and 7

BORING TOOL POINTS; OLD PATTERN WITH FLUTED SHANKS



Price, per set (8 points), **$0.48;** per dozen, **$0.72.**

Packed 1 set or 1 dozen in a wooden box.



AUTOMATIC STAR POCKET BORER

No. 8

Handsomely knurled and **NICKELED** steel.

May be **COMPRESSED** into convenient **SIZE FOR THE POCKET.**

MAGAZINE HANDLE, containing 8 **DRILL POINTS,** ranging from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, and a **SCREW DRIVER BIT**

Device for releasing a bit from handle **WITHOUT DISTURBING THE OTHERS.**

Screw driver bit to be used when tool is compressed.

Chuck with **POSITIVE GRIP.**

Length, extended, $7\frac{1}{4}$ inches; compressed, $4\frac{3}{4}$ inches.

Weight, per dozen (with pasteboard boxes), $8\frac{1}{4}$ lbs.

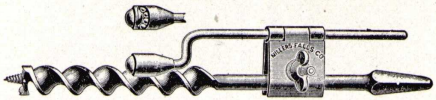
Price, per dozen, **$26.50.**

Packed 1 in a pasteboard box.

BIT GAUGE
No. 1

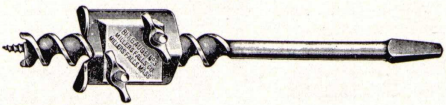
Clamps to auger bit of any size.
Tightens on bit and gauge spindle simultaneously.
Length, 4¾ inches.
Weight, per dozen, 2 lbs.
Price, per dozen, **$4.00.**
Packed ½ dozen in a pasteboard box.

ANTI-FRICTION BIT GAUGE
No. 2



Entirely **POLISHED AND NICKELED.**
Clamps to auger bit of any size.
Tightens on bit and gauge spindle at same time.
Ball in end, running on six smaller balls, to **PREVENT DEFACING DELICATE MATERIAL** when in contact with gauge.
Length, 5¾ inches.
Weight, per dozen, 1¾ lbs.
Price, per dozen, **$5.00.**
Packed ½ dozen in a pasteboard box.

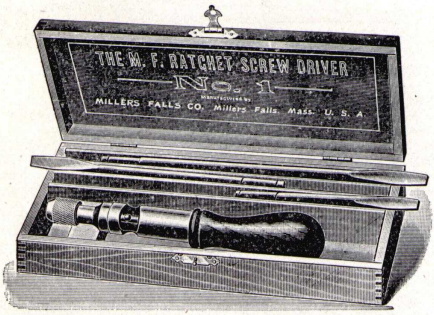
BIT GAUGE
No. 36



NICKEL PLATED.
A simple device to be clamped at any point on auger bit.
Contact with work by **TWO SMOOTH SHOES,** so made as not to mar material.
Weight, per dozen, 2 lbs.
Price, per dozen, **$4.50.**
Packed ½ dozen in a pasteboard box.

RATCHET SCREW DRIVER

No. 1



COCOBOLO handle; metal parts, including bits, **NICKELED.**
Ratchets in either direction or may be used as an ordinary screw driver.
Three bits, 5, 7, and 9 inches long respectively, to fit screws of different sizes.
Length of handle, 7 inches.
Weight, per dozen sets (with wooden and pasteboard boxes), 19 lbs.
Price, per dozen sets, **$23.50.**
Packed each set in a substantial wooden box within a pasteboard carton.

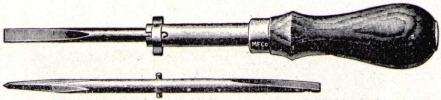
RATCHET SCREW DRIVER

No. 2

The same as Ratchet Screw Driver No. 1, shown next preceding, excepting that it has only one bit set permanently in the handle.
Length, 10 inches.
Weight, per dozen (with pasteboard boxes), 7 lbs.
Price, per dozen, **$16.00.**
Packed 1 in a pasteboard box.

DUPLEX SCREW DRIVER

Nos. 1 and 3



All metal parts **NICKELED.**

HAND FORGED, carefully tempered, reversible bit; **SQUARE REAMER** on one end for starting screw holes and **SCREW DRIVER** on the other end.

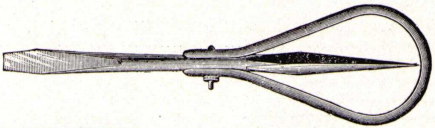
Nos	1 (cocobolo handle)	3 (maple handle)
Length	9½ in.	9½ in.
Weight, per dozen	6 lbs.	6 lbs.
Price, per dozen	**$6.30**	**$4.75**

Packed ½ dozen in a pasteboard box.

Bits only, per dozen, **$2.50.**

DUPLEX SCREW DRIVER

No. 2



Tempered steel, **NICKELED.**

REVERSIBLE bit, screw driver, and reamer combined.

Length, 4 inches.

Price, per dozen, **$4.00.**

Packed 1 in a leather case.

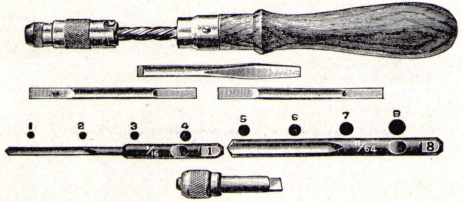
HAND FORGED ROUND SCREW DRIVER BIT

Nos	1	2
Length	5 in.	8 in.
Weight, per dozen	1¾ lbs.	2½ lbs.
Price, per dozen	**$2.00**	**$2.50**

Packed 1 dozen in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 11 and 12



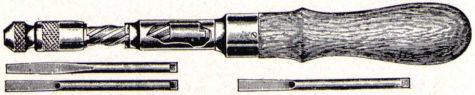
COCOBOLO handle; metal parts **NICKELED.**
REVOLVING SLEEVE to be grasped between thumb and fingers to steady the tool.
LOCKING DEVICE to hold bits in chuck.
Spiral may be locked rigid and tool used as an ordinary screw driver.
Three screw driver bits, four inches long, two with double ends, provided, to fit screws of varying sizes.
Length, extended, 15 inches.
Length, closed, 9½ inches.
No. 11 has 3 screw driver bits.
No. 12 has 3 screw driver bits, drill chuck, and 8 drill points.

Nos.	11	12
Weight, per dozen (with pasteboard boxes)	10 lbs.	12 lbs.
Price, per dozen	**$17.00**	**$23.50**

Packed 1 in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 20 and 21



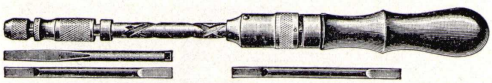
Stained hardwood handle; metal parts **NICKELED.**
REVOLVING SLEEVE to be grasped between thumb and fingers to steady the tool.
LOCKING DEVICE to hold bits in chuck.
Tool may be used as an ordinary screw driver by locking the spiral.
Three bits, four inches long, to fit screws of varying sizes.

Nos.	20	21
Length, extended	13 in.	15 in.
Length, closed	9½ in.	10 in.
Weight, per dozen (with pasteboard boxes)	7½ lbs.	10 lbs.
Price, per dozen	**$14.00**	**$14.50**

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER

No. 41



Stained hardwood handle; exposed metal parts **NICKELED.**

Two spiral grooves on plunger, permitting chuck to be **REVOLVED EITHER TO RIGHT OR LEFT;** grooves, being of different depths, **AVOID WEAR AT POINTS OF INTERSECTION AND SO PITCHED** as to make the tool a powerful one.

Spiral may be locked to make ordinary screw driver of **DIFFERENT LENGTHS.**

LOCKING DEVICE to hold bits in chuck

Three screw driver bits, two with double end, supplied, to fit screws of varying sizes.

Length, extended, 17¾ inches.

Length, closed, 12 inches.

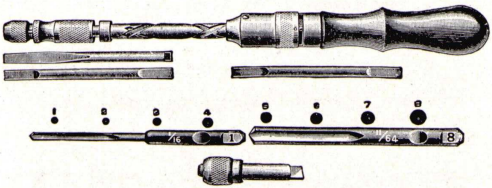
Weight, per dozen (with pasteboard boxes), 15 lbs.

Price, per dozen, **$23.00.**

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER

No. 42



The same as Screw Driver No. 41, shown next preceding, except that drill chuck and eight wood boring points, ranging from $\frac{1}{16}$ to $\frac{1}{4}$ inch in diameter, are supplied.

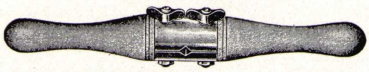
Weight, per dozen (with pasteboard boxes), 17 lbs.

Price, per dozen, **$29.50.**

Packed 1 in a pasteboard box.

PRATT'S PATENT AUGER HANDLE

Nos. 1 and 2



Stout ash wood handle.
Steel band, three inches long, split longitudinally, opens to admit all sizes and shapes of auger shanks, excepting largest sizes of ship augers.
Centers augers correctly.

Nos.	1	2
Length	14 in.	17 in.
Weight, per dozen	16 lbs.	18 lbs
Price, per dozen	$8.00	$8.00

Packed ½ dozen in a pasteboard box.

ROGERS' AUGER HANDLE

No. 3

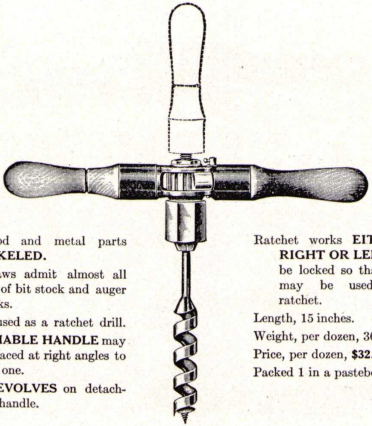
Body casting malleable iron; screw steel; handles ash.
A light, strong handle.
Length, 16 inches.
Weight, per dozen, 17 lbs.
Price, per dozen, **$6.00.**
Packed ¼ dozen in a pasteboard box.

ROGERS' AUGER HANDLE

No. 03

Excepting longer clamp, operated by two screws, the same as Auger Handle No. 3, shown next preceding.
Length, 16 inches.
Weight, per dozen, 18 lbs.
Price, per dozen, **$6.50.**
Packed ¼ dozen in a pasteboard box.

PRATT'S RATCHET AUGER HANDLE
No. 4



Ash wood and metal parts **NICKELED.**

Chuck jaws admit almost all sizes of bit stock and auger shanks.

May be used as a ratchet drill.

DETACHABLE HANDLE may be placed at right angles to fixed one.

Wood **REVOLVES** on detachable handle.

Ratchet works **EITHER TO RIGHT OR LEFT** or may be locked so that the tool may be used without ratchet.

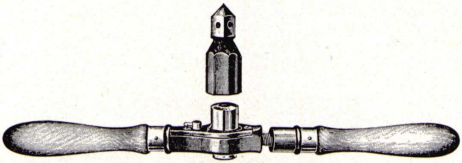
Length, 15 inches.

Weight, per dozen, 36 lbs.

Price, per dozen, **$32.00.**

Packed 1 in a pasteboard box.

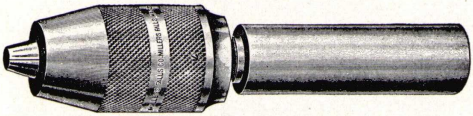
GUNN'S RATCHET AUGER HANDLE
No. 5



Malleable iron, steel, and second growth ash wood.
Holds and centers auger shanks of all ordinary sizes.
One handle **DETACHABLE.**
Ratchet works **EITHER TO RIGHT OR LEFT** or may be locked so tool may be used as if without ratchet.
Attachment, as shown in illustration, provided to **CONVERT TOOL INTO A RATCHET DRILL.**
Length, 16½ inches.
Weight, per dozen, 26 lbs.
Price, per dozen, **$20.00.**
Packed 1 in a pasteboard box.

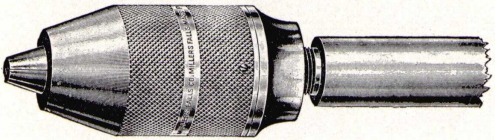
STAR CHUCK

No. 5



STAR CHUCK

No. 6



STAR CHUCK

No. 7

STAR CHUCKS

Nos. 5, 6, and 7

Handsomely **NICKELED**, substantial chucks.

Three jaws, carefully adjusted in a socket, opening with a spring and closing with pressure from spindle.

GRIP TENACIOUSLY, and **CENTER ACCURATELY**, round shanks.

Nos.	5	6	7
Capacity	0–$\frac{1}{2}$ in.	0–$\frac{3}{4}$ in.	0–$\frac{1}{2}$ in.
Outside diameter of chuck	1 in.	1$\frac{1}{4}$ in.	1$\frac{1}{4}$ in.
Dimensions of shank	1$\frac{1}{4}$x$\frac{1}{4}$ in.	3$\frac{1}{8}$x$\frac{1}{4}$ in.	4$\frac{1}{4}$x$\frac{1}{4}$ in.
Weight	7 oz.	12 oz.	20 oz.
Price	**$1.25**	**$2.00**	**$2.50**

Packed 1 in a pasteboard box.

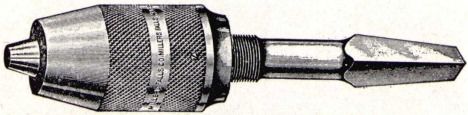
CHUCKS FURNISHED TO ORDER WITH SHANKS AS FOLLOWS WITHOUT EXTRA CHARGE:

Nos.	5	6	7
Diameter of shank	$\frac{1}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{4}$ **or** $\frac{1}{2}$ **in.**

Special shanks, straight or taper, at additional charge of 50 cents each.

When ordering taper shanks, take care to state exact taper wanted.

STAR CHUCK
No. 15



STAR CHUCK
No. 16

STAR CHUCK
No. 17

The same as Star Chucks Nos. 5, 6, and 7, shown next preceding, except that shanks are of the bit stock pattern, permitting chucks to be used in bit braces, breast drills, and other tools.

Nos.	15	16	17
Capacity	0–¼ in.	0–⅜ in.	0–½ in.
Outside diameter of chuck	1 in.	1¼ in.	1½ in.
Length of shank	2 in.	2½ in.	2½ in.
Weight	6 oz.	10 oz.	17 oz.
Price	**$2.00**	**$2.50**	**$3.00**

Packed 1 in a pasteboard box.

MASTER LATHE CHUCK

No. 150

No. 150

NICKELED chuck; solid steel shank. Chuck holds, and centers with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.
Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{1}{4}$ inches.
Dimensions of shank, $\frac{1}{16}$x4 inches.
Weight, 29 oz.
Price, **$2.00.**
Packed 1 in a pasteboard box.
CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{2}$ OR $\frac{11}{16}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.
Special shanks, straight or taper, to order at **$0.50** extra each.

No. 151

BARBER LATHE CHUCK

No. 151

The same as Lathe Chuck No. 150, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially for bit stock and many sizes of round shanks.
Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{7}{16}$ inches.
Dimensions of shank, $\frac{1}{16}$x4 inches.
Weight, 26 oz.
Price, **$2.00.**
Packed 1 in a pasteboard box.
CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{2}$ OR $\frac{11}{16}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.
Special shanks, straight or taper, to order at **$0.50** extra each.

STAR HACK SAWS

THROUGHOUT THE WORLD THE STANDARD OF HACK SAWS.

TEMPERED TO THE UTMOST WITHOUT INJURING THE TOUGHNESS AND TOUGHENED TO THE UTMOST POSSIBLE WITHOUT INJURING THE TEMPER.

Made from the **HIGHEST GRADE OF STEEL** according to our **SPECIAL FORMULA.**

PERFECTLY TOOTHED with **PATENT SET; SCIENTIFICALLY DESIGNED** and **ABSOLUTELY CORRECT** as to **WIDTH, THICKNESS,** and **NUMBER OF TEETH** to the inch.

All saws of **UNIFORM EXCELLENCE**

Made with 14 and 24 teeth to the inch. Blades with 14 teeth to the inch are **ADAPTED TO ALL KINDS OF HACK SAW WORK AND MATERIALS** except thin stock and tubing with thin walls, for which blades with 24 teeth should be used. **BLADES WITH 14 TEETH TO THE INCH ARE SUPPLIED UNLESS 24 TEETH OR "FINE" IS SPECIFIED.**

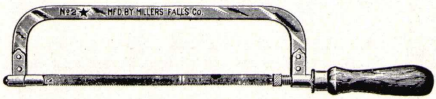
Owing to the fact that Star Hack Saws are universal in their application the **NECESSITY IS OBVIATED OF DEALERS' CARRYING IN STOCK BLADES OF VARYING WIDTHS, THICKNESS, AND NUMBER OF TEETH TO THE INCH.**

Length and width.....	6x⅜ in.	7x⅜ in.	8x⅜ in.	9x⅜ in.
Weight, per gross.....	2¼ lbs.	3 lbs.	3¼ lbs.	3½ lbs.
Price, per dozen.....	**$0.30**	**$0.32**	**$0.34**	**$0.38**
Price, per gross.....	**$3.50**	**$3.75**	**$4.00**	**$4.50**
Length and width.....	10x½ in.	11x½ in.	12x½ in.	12x⅝ in.
Weight, per gross.....	4⅝ lbs.	5 lbs.	5½ lbs.	10 lbs.
Price, per dozen.....	**$0.42**	**$0.46**	**$0.50**	**$0.67**
Price, per gross.....	**$5.00**	**$5.50**	**$6.00**	**$8.00**

Packed ½ gross in a pasteboard box.

STAR HACK SAW FRAME

No. 2



COCOBOLO handle; **POLISHED AND NICKELED** steel.

Stiff, solid frame for 8-inch blades only.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while adjusting it in the frame.

Depth under back, 2¾ inches.

Weight, per dozen (with pasteboard boxes), 10½ lbs.

Price, per dozen, with one 8-inch blade in each frame, **$11.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 17 and 18

COCOBOLO handle; **POLISHED AND NICKELED** steel frame.

Especially heavy and stiff stock, 1x¼ inch; slightly **HOG-BACKED,** adding to strength.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

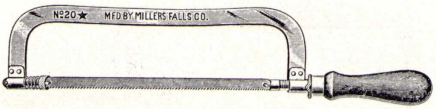
Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Nos.	17	18
Capacity	9 and 10 in.	11 and 12 in
Depth under back	3 in	3 in.
Weight, per dozen (with pasteboard boxes)	22 lbs.	27 lbs.
Price, per dozen, with one 10-inch blade in each frame	**$13.00**	
Price, per dozen, with one 12-inch blade in each frame		**$15.50**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 20



COCOBOLO handle; **POLISHED AND NICKELED** steel frame.

Especially heavy and stiff stock, $\frac{13}{16} \times \frac{3}{16}$ inches; slightly **HOG-BACKED,** adding to strength.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Capacity, 8 and 9 inches.

Weight, per dozen, with pasteboard boxes, 16 lbs.

Depth under back, $3\frac{1}{8}$ inches.

Price, per dozen, with one 8-inch blade in each frame, **$12.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 25

Stiff, **POLISHED AND NICKELED** steel frame, made from stock $\frac{13}{16} \times \frac{3}{16}$ inches, stained hardwood handle.

Blade strained with thumb nut and screw stud; may be faced in four directions.

Capacity, 8 inches.

Depth under back, $3\frac{7}{16}$ inches.

Weight, per dozen (with pasteboard boxes), 13 lbs.

Price, per dozen, without blades, **$6.00.**

Packed 1 in a pasteboard box.

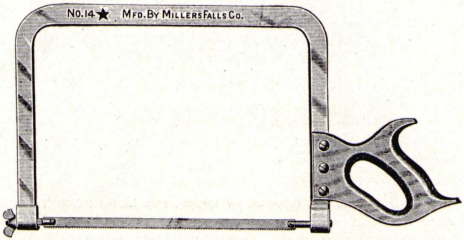
STAR HACK SAW FRAME

No. 15

POLISHED AND NICKELED frame of **STIFF, HEAVY** steel, 1x¼ inch; **COCOBOLO** handle.
Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.
Knurled check nut to screw down and overlap the end of the blade to hold it in place while it is being adjusted in the frame.
Capacity, 12 inches.
Depth under back, 5½ inches.
Weight, per dozen (with pasteboard boxes), 30 lbs.
Price, per dozen, with one 12-inch blade in each frame, **$19.50.**
Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 14, 24 and 240



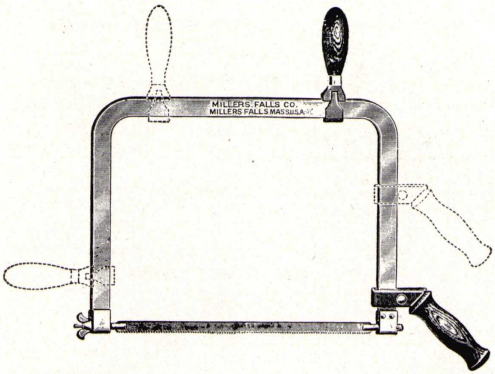
Beech wood handle; extra heavy steel stock, 1x¼ inch.
Especially for sawing steel **RAILS, GIRDERS, AND OTHER LARGE WORK.**
Blades strained by thumb nut and screw stud; may be faced in four directions.
Depth under back, 10½ inches.
Weight, per dozen (with pasteboard boxes), 48 lbs.

	Polished and Nickeled	Japanned	Polished and Nickeled
Nos.	14	24	240*
Capacity	12 in.	12 in.	12 in.
Price, per dozen, with one 12-inch blade in each frame	**$23.00**	**$20.00**	**$25.00**

Packed 1 in a pasteboard box.
*No. 240 is supplied with an auxiliary handle as shown on following page; in other respects same as No. 14,

STAR HACK SAW FRAMES

Nos. 014. 014½. and 015



Extra heavy steel stock, 1x⅛ inch, **POLISHED AND NICKELED;** stained hardwood handles.

Main handle pitched **SO AS TO ECONOMIZE ENERGY;** may be moved up or down.

Auxiliary handle, loosened or tightened by turning, may be **SHIFTED TO ANY PART OF THE FRAME,** materially **STEADYING THE FRAME** when placed at the top, thus economizing in blades, time, and effort, and, when placed opposite main handle, **PERMITTING TWO OPERATORS.** Its clamp may be used as a wrench to tighten the nut of the main handle.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Nos.	014	014½	015
Capacity	12 in.	12 in.	12 in.
Depth under back	10½ in.	7½ in.	5½ in
Weight, per dozen (with pasteboard boxes)	52 lbs.	44 lbs.	38 lbs.
Price, per dozen, with one 12-inch blade in each frame	**$25.00**	**$23.00**	**$21.00**

Packed 1 in a pasteboard box

STAR HACK SAW FRAME

No. 6

COCOBOLO handle; **POLISHED AND NICKELED** steel stock, $\frac{5}{16}$x$1\frac{3}{8}$ inch.

STIFF, STRONG back.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down to overlap the end of the blade and hold it in place while being adjusted in the frame.

Weight, per dozen (with pasteboard boxes), 18 lbs.

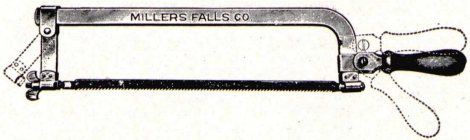
Depth under back, $2\frac{3}{4}$ inches.

Price, per dozen, with one 12-inch blade in each frame, **$15.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 7 and 8



Stained hardwood handle; steel frame of stock, $\frac{5}{16}$x$1\frac{3}{8}$ inch.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by turning of a thumb nut; may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME,** and **THE ANGLE OF WHICH,** as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

Weight, per dozen (with pasteboard boxes), $19\frac{1}{2}$ lbs.

Depth under back, $3\frac{1}{4}$ inches.

No. 7, nickeled, except black enameled handle clamp, per dozen, with one 12-inch blade in each frame, **$12.00.**

No. 8, entirely polished and nickeled, per dozen, with one 12-inch blade in each frame, **$16.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 38

Stained hardwood handle; steel frame, **POLISHED AND NICKELED**, of stock $\frac{5}{16}$x$\frac{1}{32}$ inch.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long

Blades strained by turning of a thumb nut; may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

BACK GRADUATED WITH SCALE from 1 to 12 inches with $\frac{1}{8}$-inch intervals, a device of much convenience in measuring material to be cut.

Weight, per dozen (with pasteboard boxes), 19½ lbs.

Depth under back, 3¼ inches.

Price, per dozen, with one 12-inch blade in each frame, **$19.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 9 and 49

COCOBOLO handle; **POLISHED AND NICKELED** steel.

STEEL SHEATH over the back making frame **LIGHT** and **STRONG.**

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Adjustable for blades from 8 to 12 inches long.

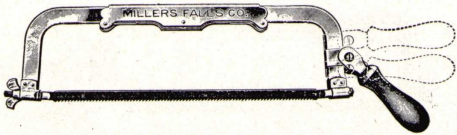
Knurled check nut screwing down and overlapping the end of the blade to hold it in place while inserting it in the frame.

Nos	9	49
Depth under back	2¼ in.	3⅜ in
Weight, per dozen (with pasteboard boxes)	12½ lbs.	16½ lbs
Price, per dozen, with one 10-inch blade in each frame	**$15.00**	**$16.00**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 19 and 39



Steel frame of stock, $\frac{5}{16}$x$1\frac{3}{8}$ inch, and steel sheath; stained hardwood handle.

Adjustable for blades from 6 to 12 inches long.

Blade strained by turning of thumb nut and may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

Depth under back, $3\frac{1}{4}$ inches.

Weight, per dozen (with pasteboard boxes), 21 lbs.

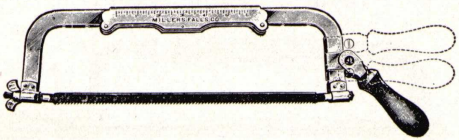
No. 19, with polished and nickeled handle clamp, per dozen, with one 10-inch blade in each frame, **$19.00.**

No. 39, with black enameled handle clamp, per dozen, with one 10-inch blade in each frame, **$13.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 59



Stained hardwood handle; polished and nickeled steel frame and sheath, the former of stock $\frac{5}{16}$x$1\frac{3}{8}$ inch.

Adjustable for blades from 6 to 12 inches long.

Blade strained by turning of thumb nut and may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME**, and the **ANGLE OF WHICH**, as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

BACK GRADUATED WITH SCALE from 1 to 6 inches with $\frac{1}{8}$-inch intervals, a device of much convenience in measuring material to be cut.

Weight, per dozen (with pasteboard boxes), 21 lbs.

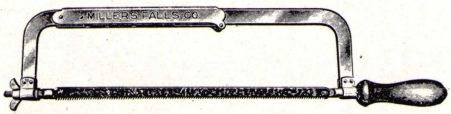
Depth under back, $3\frac{1}{4}$ inches.

Price, per dozen, with one 10-inch blade in each frame, **$22.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 26



A light, stiff frame of $\frac{3}{16}$x$\frac{1}{2}$ inch steel stock, nickeled; stained hardwood handle.

Steel sheath, solid to the frame at one end and adjustable at the other.

Adjustable for blades from 8 to 12 inches long.

Blade strained by turning of a thumb nut and may be faced in four directions.

Weight, per dozen (with pasteboard boxes), 16½ lbs.

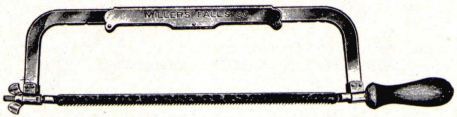
Depth under back, 3¼ inches.

Price, per dozen, with one 10-inch blade in each frame, **$8.40.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 27



Frame of $\frac{3}{16}$x$\frac{1}{2}$ inch steel stock, **POLISHED AND NICKELED;** stained hardwood handle.

Extensible for blades from 8 to 12 inches.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Weight, per dozen (with pasteboard boxes), 12½ lbs.

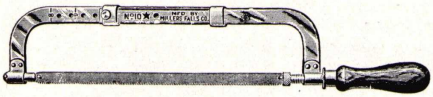
Depth under back, 3¼ inches.

Price, per dozen, with one 10-inch blade in each frame, **$12.00.**

Packed 1 a pasteboard box.

STAR HACK SAW FRAMES

Nos. 10 and 11



COCOBOLO handle; **POLISHED AND NICKELED** steel stock, $\frac{5}{16}$x$1\frac{1}{8}$ inch.

COMPACT, STIFF frame, with **EXTRA STRENGTH IN THE MIDDLE OF THE BACK** where there is the greatest strain.

Extensible for blades from 8 to 12 inches, with scale for the different lengths on the back of the frame.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

Nos.	10	11
Depth under back	$2\frac{3}{8}$ in.	$3\frac{1}{2}$ in.
Weight, per dozen (with pasteboard boxes)	$15\frac{3}{4}$ lbs.	$16\frac{1}{2}$ lbs.
Price, per dozen, with one 10-inch blade in each frame	**$15.50**	**$16.50**

Packed 1 in a pasteboard box.

MAGAZINE STAR HACK SAW FRAMES

Nos. 28, 29, and 30

Stained hardwood handles; steel frames **POLISHED AND NICKELED** on the back and japanned on the sliding clamp and the end next the handle, except No. 30, which has a **COCOBOLO** handle and all metal parts **POLISHED AND NICKELED.**

Backs of rectangular tubing, affording **LIGHTNESS** and **STRENGTH** and **A RECEPTACLE FOR SIX SAW BLADES** closed with a hinged cap.

Blades always **CONVENIENT TO HAND** and **SAFE FROM ACCIDENTAL BREAKAGE.**

Sliding clamp **INSTANTLY ADJUSTABLE** to different lengths of blades.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

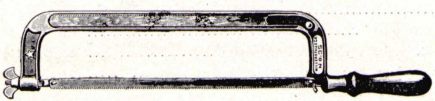
Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

Nos.	28	29	30
Capacity	6 to 9 in.	8 to 12 in.	8 to 12 in.
Depth under back	3½ in.	3½ in.	3½ in.
Weight, per dozen (with pasteboard boxes)	19 lbs.	21 lbs.	21 lbs.
Price, per dozen, with one 9-in. blade in each frame	**$20.00**		
Price, per dozen, with one 12-in. blade in each frame		**$20.00**	
Price, per dozen, with one 12-in. blade in each frame			**$27.50**

Packed 1 in a pasteboard box.

MAGAZINE STAR HACK SAW FRAME

No. 35



Stained hardwood handle; black enameled cast iron frame.

Back of frame **RECESSED TO HOLD THREE BLADES** or less on each side; blades held in place by a flat spring.

Blades strained by turning a thumb nut and may be faced in four directions.

Capacity, 12 inches.

Depth under back, 2¾ inches.

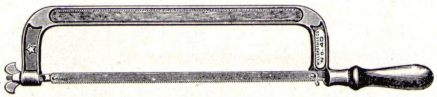
Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, without blades, **$7.00.**

Packed 1 in a pasteboard box.

MAGAZINE STAR HACK SAW FRAME

No. 40



The same as Hack Saw Frame No. 35, shown next preceding, except that the blades are sprung into the magazine and retained by the casting's lapping over their ends.

Capacity, 12 inches.

Depth under back, 2⅝ inches.

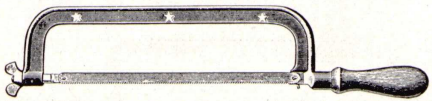
Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, without blades, **$7.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 4A, 4B, 4C, and 4D



Stained hardwood handle; black enameled frame.

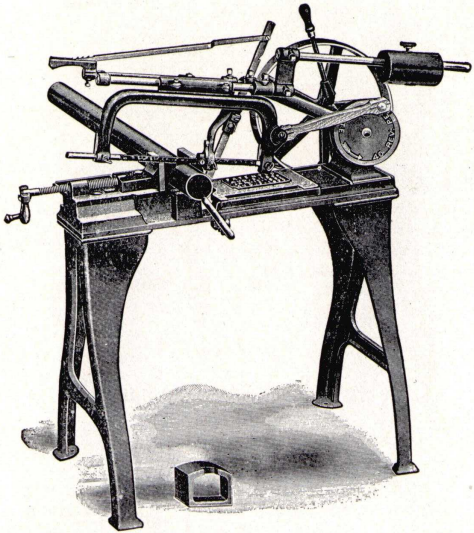
Blades strained with thumb screw and screw stud; may be faced in four directions.

Nos.	4A	4B	4C	4D
Capacity	8 in.	9 in.	10 in.	12 in.
Depth under back	2½ in.	2½ in.	2½ in.	2½ in.
Weight, per dozen	12½ lbs.	13½ lbs.	15 lbs.	17½ lbs.
Price, per dozen, without blades	**$4.00**	**$4.00**	**$4.25**	**$4.50**

Packed ½ dozen in a pasteboard box.

STAR POWER HACK SAW

No. 89



REQUIRES NO ATTENTION, except when inserting work and starting machine; **STOPS AUTOMATICALLY** when cut is made.

Adjustable, **SELF-FEEDING,** cutting fast or slow according to material at work on.

Adapted to all kinds of work, of all shapes and sizes up to 4½ inches in diameter.

Power transmitted by direct drive.

Six 12-inch blades furnished with each machine; also block to permit the use of full length of blades.

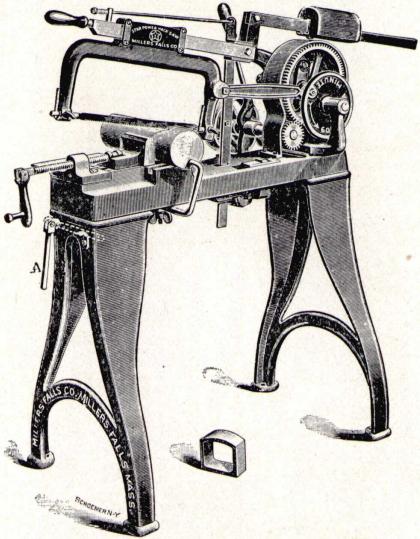
Speed recommended, 45 strokes a minute.

Floor space, 18x30 inches; distance from floor to top of bed, 28 inches; capacity, 10, 11, and 12 inch blades; size of pulley, 13¼x2¼ inches; weight, boxed, 222 lbs.; crated, 200 lbs.; net, 168 lbs.

Price, **$25.00.**

For prices of parts see page 96,

STAR POWER HACK SAW, No. 90



GEAR DRIVE giving great **STEADINESS** to the stroke. **QUICK RETURN MOVEMENT** of saw frame, thus saving time, the speed of back stroke being just twice that of cutting stroke.

Saw frame **SLIGHTLY LIFTED ON BACK STROKE, PROLONGING THE LIFE OF THE BLADE.**

An attachment provided which, by lifting lever A, as shown in illustration, **HOLDS THE BLADE IN SUSPENSION** a trifle above the work. This permits the use of both hands in adjusting the work, or measuring it, etc. A support on the bed on the cut-off side of the blade **TO PREVENT THE MATERIAL FROM DROPPING OFF WHEN CUT IS NEARLY FINISHED.** An adjusting screw in the head to take up any wear on the arm. **A REMOVABLE VISE NUT** in the bed, which can be replaced in case of wear. Working parts under the bed **AWAY FROM DUST AND DIRT.**

STOPS AUTOMATICALLY when cut is made.

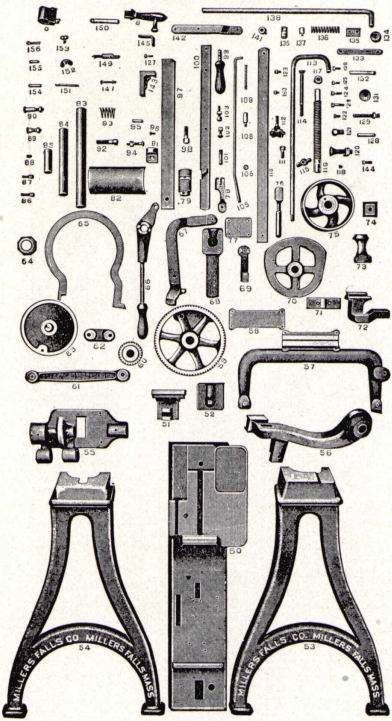
Back geared 3 to 1. Height from floor to top of bed, 28 inches; floor space, 20x46 inches; strokes recommended per minute, 60; size of pulley, 2x6 inches; cutting capacity, 5x5 inches; length of blade, 12 inches; weight, boxed, 294 lbs.; weight, crated, 258 lbs.; weight, net, 215 lbs.

Price, $35.00.

For prices of parts see pages 94 and 95.

PARTS OF STAR POWER HACK SAW

No. 90

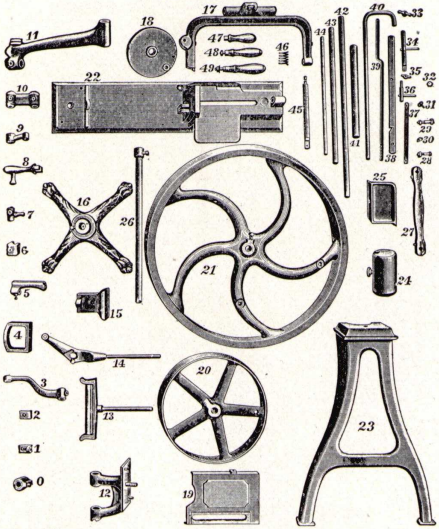


PRICES OF PARTS OF STAR POWER HACK SAW

No. 90

0	Clutch Collar	$0.40	102	Elevator Bar Stop Bolt	$0.05
8	Vise Handle	.25	103	Elevator Bar Adjusting Screw	.08
50	Bed	5.00	105	Elevator Bar Trip Rod	.10
51	Vise Jaw	.50	106	Elevator Bar Trip Rod Nut	.05
52	Vise Nut	.40	108	Elevator Bar Trip Rod Stud	.08
53	Front Leg	2.50	109	Elevator Bar Trip Rod Spring	.05
54	Rear Leg	2.50	110	Weight Bar	.35
55	Head	3.00	111	Weight Bar Screw	.10
56	Arm	3.00	112	Weight Screw	.15
57	Frame	4.00	113	Gauge Bar	.30
58	Frame Cover	.35	114	Gauge Bar Clamp Bolt	.15
59	Large Gear	2.50	115	Gauge Bar Clamp Bolt Wing Nut	.10
60	Small Gear	1.25			
61	Pitman	.50	116	Vise Screw	.45
62	Link	.35	117	Vise Screw Collar	.15
63	Face Plate	.75	118	Vise Screw Collar Screw	.03
64	Adjusting Screw Check Nut	.25	120	Vise Nut Clamp Bolt	.15
65	Gear Guard	.75	121	Vise Jaw Screw	.15
66	Clutch Lever	.75	122	Knockoff Screw	.08
67	Lifter Lever	.75	123	Knockoff Strap Screw	.05
68	Lifter Box	1.00	124	Knockoff Lever and Link Screw	.05
69	Lifter Cam	.35	125	Knockoff Center Lever Screw	.05
70	Cam	1.00	126	Knockoff and Link Screw	.05
71	Knockoff	.25	127	Lifter Box Cover Screw	.05
72	Knockoff Lifter	.35	128	Lifter Box Raising Pin	.05
73	Gauge Clamp	.35	129	Lifter Box Adjusting Screw	.20
74	Gauge Top	.20	131	Lifter Box Disc	.10
75	Pulley	1.00	132	Lifter Box and Lever Pin	.08
76	Gauge Lifter Handle	.35	133	Connecting Strap	.10
77	Lifter Cover	.20	134	Lifter Lever Roll	.15
78	Clutch Lever Link	.25	135	Elevator Catch Plate	.10
79	Adjusting Screw	1.50	136	Lifter Lever Spring	.08
81	Elevator Stop	.15	137	Lifter Lever Spring Stud	.08
82	Weight	1.00	138	Measuring Lifter Rod	.20
83	Drive Arbor	.30	139	Measuring Lifter Rod Head	.25
84	Gear Arbor	.25	141	Measuring Lifter Rod Collar	.15
85	Face Plate Arbor	.15	142	Center Lever	.20
86	Gear Screw	.08	143	Measuring Lifter Rod Bearing Casting	.20
87	Cam and Clutch Collar Screw	.08			
88	Small Gear Screw	.05	144	Measuring Lifter Rod Bearing Screw	.05
89	Gear Link Screw	.15			
90	Face Plate Link Screw	.20	145	Measuring Lifter Rod Bearing Rest	.10
92	Head Lock Screw	.20			
93	Collar Spring	.08	147	Frame Cover Screw	.08
94	Pitman Screw	.05	149	Short Stud	.15
95	Pulley Pin	.03	150	Long Stud	.15
96	Catch Plate and Gear Guard Screw	.05	151	Stud Pin	.05
			152	Stud Wing Nut	.10
97	Guide Bar	.40	153	Stud Thumb Screw	.06
98	Guide Bar Screw	.20	154	Head Dowel Pin	.03
99	Guide Bar Handle	.20	155	Weight Bar Pin	.03
100	Elevator Bar	.30	156	Cotter Pin	.02
101	Elevator Bar Screw	.05	160	Lifter Box Disc Screw	.05

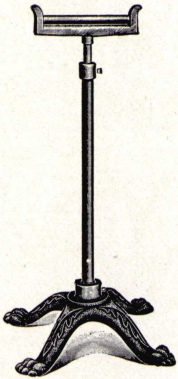
PARTS OF STAR POWER HACK SAW, No. 89, AND PRICES



No.		
0	Clutch Collar	$0.40
1	Elevator Stop	.25
2	Frame Clamp	.15
3	Long Guide	.90
4	Loose Vise Jaw	.75
5	Lift Handle	.30
6	Gauge Clamp	.25
7	Short Guide	.60
8	Vise Wrench	.25
9	Short Yoke	.30
10	Long Yoke	.40
11	Arm	2.25
12	Standard	1.90
13	Rest Yoke	.75
14	Clutch Lever	.75
15	Vise Jaw	.45
16	Rest Base	.90
17	Frame	3.80
18	Face Plate	.75
19	Sliding Frame	.50
20	Pulley	2.00
21	Hand Wheel	4.50
22	Bed	5.00
23	Leg	2.25
24	Weight	.90

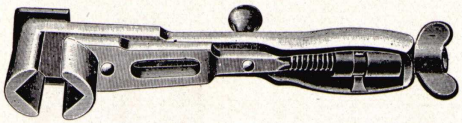
No.		
25	Tool Tray	$0.30
26	Rest Standard	.30
27	Wood Pitman	.30
28	Small Pitman Bolt	.15
29	Large Pitman Bolt	.25
30	Dog	.08
31	Malleable Thumb Screw	.08
32	Guide Screw and Nut	.15
33	Gauge Clamp Nut	.15
34	Long Stud	.15
35	Short Stud Nut	.08
36	Short Stud	.15
37	Short Strap	.08
38	Elevator Bar	.25
39	Long Strap	.15
40	Gauge Rod	.40
41	Arbor	.30
42	Weight Rod	.90
43	Large Bearing Rod	.45
44	Small Bearing Rod	.40
45	Vise Screw	.45
46	Clutch Collar Spring	.08
47	Clutch Lever Handle	.15
48	Pulley Bolt and Handle	.30
49	Hand Wheel Bolt and Handle	.40

BAR REST

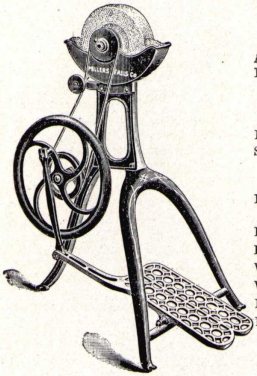


To be used in connection with power hack saw to support long pieces to be cut.
Adjustable to various heights, ranging from 24 to 31 inches.
Weight, 12 lbs.
Price, **$2.00.**

ADJUSTABLE WAGON WRENCH



Malleable iron; rough nickeled.
Tenacious grip; may be used as a hand vise.
Knob on the back to be used as a crank in whirling nut on or off.
Weight, per dozen, 13 lbs
Price, per dozen, **$4.00.**
Packed ½ dozen in a pasteboard box.



FAMILY GRINDSTONE

No. 2

Adapted especially for household purposes.

Iron castings, japanned black, ornamented with red stripes; stone of suitable grain and hung on a **STEEL ARBOR.**

Device for tightening the belt.

Stone runs in a trough and superfluous water is wiped from it by sponges in either end of the trough.

Foot power, with speeded drive and heavy drive wheel.

Dimensions of stone, 8x1¾ inches.

Height over all, 33 inches.

Weight, boxed, 66 lbs.

Weight, net, 43 lbs.

Price, each, **$5.25.**

Knocked down and packed 1 in a case.

GRINDSTONE

No. 3

Iron castings, japanned black, with red stripes; selected stone of suitable grain, hung on a **STEEL ARBOR.**

Foot or hand driven, with weighted crank to steady the motion and to help maintain velocity.

Superfluous water wiped from stone by a sponge in either end of the trough.

Rest attachment against which to hold tools while sharpening them.

Dimensions of stone, 14x1¾ inches.

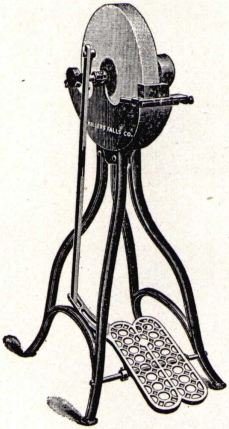
Height over all, 38 inches.

Weight, boxed, 85 lbs.

Weight, net, 56 lbs.

Price, each, **$6.00.**

Knocked down and packed 1 in a wooden box.



GRINDSTONE

No. 4

Similar to Grindstone No. 3, shown next preceding, except that the stand has four legs to add to stability and, when desired, a 4x2 inch pulley for power drive is furnished.

Dimensions of stone, 14x1¾ inches.

Height over all, 39 inches.

Weight, boxed, 97 lbs.

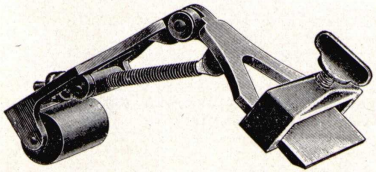
Weight, net, 85 lbs.

Price, without pulley, **$6.50.**

Price of pulley, **$0.65.**

Knocked down and packed 1 in a wooden box.

CHISEL GRINDER



Cast iron, rough nickeled.

Adjustable to hold chisels, plane irons, etc., against grindstone at different bevels and enabling the user to obtain the **SAME BEVEL THE FULL WIDTH OF THE TOOL BEING GROUND.**

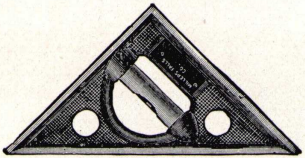
Roller bearing against grindstone.

Weight, per dozen, 16 lbs.

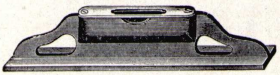
Price, per dozen, **$12.00.**

Packed ¼ dozen in a pasteboard box.

PATENT IRON LEVELS



No. 20



Nos. 21 and 22

Nos. 23, 24, 25, and 26

LEVEL SURFACES CAREFULLY TRUED AND POLISHED; other parts enameled black.

SPIRIT TUBES INSERTED WITH UTMOST ACCURACY and protected with a nickeled plate.

Openwork construction with the **ADVANTAGE OF LIGHTNESS.**

MORE COMPACT, MORE DURABLE, AND LESS EXPENSIVE THAN THE BETTER CLASS OF WOODEN LEVELS.

Nos.	20	21	22	23	24	25	26
Length	4 in.	4 in.	5 in.	6 in.	12 in.	18 in.	24 in.
Weight, per dozen (with pasteboard boxes)	8½ lbs.	4 lbs.	4½ lbs	11 lbs.	26 lbs.	37 lbs.	55 lbs.
Price, per dozen	**$10.40**	**$7.00**	**$8.25**	**$12.00**	**$18.00**	**$21.50**	**$24.75**

No. 20 is a right-angle triangle level.

Nos. 21 and 22 are bench levels.

Other numbers are double plumb levels.

No. 20 packed 2 in a pasteboard box.

Other numbers packed 1 in a pasteboard box.

Ground glasses furnished at additional cost of **$0.50** per glass.

ECONOMY BUTCHER SAW BLADE

Hardened and tempered evenly throughout.

ONE BLADE COSTS LESS THAN THE FILING OF AN ORDINARY BLADE AND DOES THREE OR FOUR TIMES THE WORK BEFORE BECOMING DULL AND CUTS FASTER.

Convenience in always having sharp blades at hand.

SAWS FURNISHED, UNLESS OTHERWISE SPECIFIED, $1\frac{1}{8}$ inch wide with $9\frac{1}{2}$ teeth to the inch.

SAWS FURNISHED ONLY WHEN SO ORDERED, $\frac{1}{2}$ inch wide with 14 teeth to the inch.

Length	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per gross, $1\frac{1}{8}$ in. wide	9 lbs.	10 lbs.	11 lbs.	12 lbs.	13 lbs.	14 lbs.	15 lbs.
Weight, per gross, $\frac{1}{2}$ in. wide	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.	
Price, per dozen	**$1.45**	**$1.45**	**$1.60**	**$1.60**	**$1.75**	**$1.75**	**$1.95**
Price, per gross	**$17.00**	**$17.00**	**$19.00**	**$19.00**	**$21.00**	**$21.00**	**$23.00**

Packed $\frac{1}{2}$ gross in a pasteboard box.

STAR BUTCHER SAW FRAMES

Flat crucible steel backs. Beech handles, with polished edges.

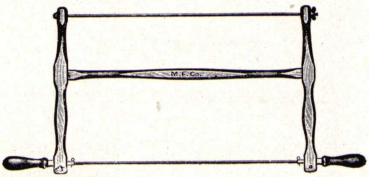
Capacity	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per doz.	25 lbs.	$27\frac{1}{2}$ lbs.	30 lbs.	$32\frac{1}{2}$ lbs.	35 lbs.	$37\frac{1}{2}$ lbs.	40 lbs.
Price, per dozen, without blades	**$14.50**	**$15.75**	**$17.00**	**$18.25**	**$19.50**	**$20.75**	**$22.00**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

STAR KITCHEN SAW

Steel frame polished; beech handle.
Device for straining the blade.
Capacity, 14 inches.
Weight, per dozen, 12½ lbs.
Price, per dozen (1 blade with each frame), **$5.25.**
Packed ½ dozen in a pasteboard box.
Price of saw blades, per dozen, **$1.45.**

TURNING SAWS



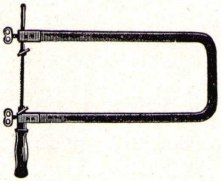
Birch wood; ebonized handles; steel tension rod.
Index on each handle to show how far to turn.
Friction regulated by screws.

Capacity	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.
Weight, per dozen (with pasteboard boxes)	13 lbs.	17 lbs.	18½ lbs.	19½ lbs.	21 lbs.	22 lbs.
Price, per dozen (including one blade with each frame)	**$14.40**	**$15.00**	**$15.60**	**$16.40**	**$17.00**	**$17.60**

Packed 1 in a pasteboard box.

	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.
Price of saw blades, per doz.	**$1.90**	**$2.10**	**$2.60**	**$3.00**	**$3.25**	**$3.65**

SPRING STEEL FRET SAW FRAMES



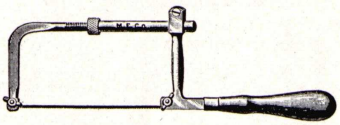
Best quality of spring steel, nickeled, cocobolo handles.

Interchangeable parts in case repairs should be needed.

Capacity	8 in.	10 in.	12 in.	14 in.	16 in.
Weight, per dozen (with pasteboard boxes)	10 lbs.	11 lbs.	12½ lbs.	14 lbs.	14½ lbs.
Price, per dozen	$15.20	$16.60	$18.00	$19.40	$20.80

Packed 1 in a pasteboard box.

JEWELERS' SAW



Forged, spring steel, nickeled, cocobolo handle.

Adjustable from 4 to 6 inches.

Weight, per dozen, 4½ lbs.

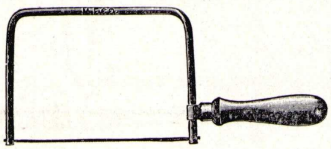
Price, per dozen, $12.00.

Packed ¼ dozen in a pasteboard box.

JEWELERS' SAW BLADES

Nos. 000 to 6, inclusive, per gross, $1.25.

COPING SAW
No. 40



Hardwood handle, stained; steel wire, NICKELED.

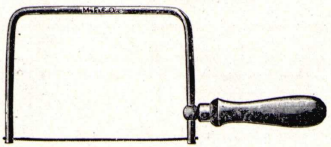
Four inches deep; holds 6-inch saw blades with looped ends

Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **$4.25.**

Packed 1 dozen in a pasteboard box.

COPING SAW
No. 41



The same as Coping Saw No. 40, shown next preceding, except that the handle is fastened to the frame with a ball-shaped clamp, adding to the firmness of the fastening and to the appearance of the tool

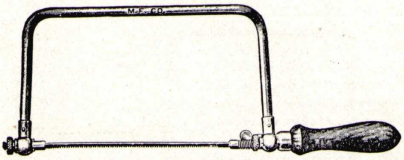
Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **$5.50.**

Packed 1 dozen in a pasteboard box.

COPING SAW, BALL-BEARING

No. 42



Heavy steel wire, **NICKELED; COCOBOLO** handle.

Frame may be **LOCKED RIGID** or adjusted to **SWING FREE WITHOUT REFERENCE TO THE DIRECTION BLADE TAKES IN SAWING** and thus **OBVIATES THE NECESSITY OF STOPPING WORK TO CHANGE THE ANGLE OF THE BLADE.**

BALL BEARINGS under outer head **TO INSURE THE ALIGNMENT OF BLADE** when the back is swinging free.

Devices to lock the frame rigid **AT BOTH ENDS OF THE BLADE.**

Weight, per dozen, with pasteboard boxes, 6 lbs.

Price, per dozen, including 3 No. 60 blades with each frame, **$14.00.**

Packed ½ dozen in a pasteboard box.

COPING SAW BLADES

No. 50

$6x\frac{1}{16}$ inches; turned ends; for Frames Nos. 40 and 41.

Price, per gross, **$1.20.**

No. 60

$6x\frac{3}{32}$ inches; with pins in the ends.

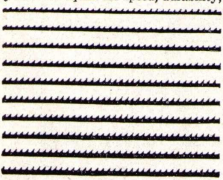
May be used with any coping saw frame taking 6-inch blades.

Cut faster and straighter and last longer than the finer sort.

Price, per gross, **$5.50.**

STAR FRET ★ SAW BLADES

Are now demanded in quantities from most remote countries.
They have no equals for speed, durability, uniformity, and smoothness of work.



Nos. 000 to 6		per gross,		$1.00
"	7	"	"	1.10
"	8	"	"	1.20
"	9	"	"	1.30
"	10	"	"	1.40
"	11	"	"	1.50
"	12	"	"	1.60

Put up 1 gross each size in a package and 10 gross in a box.
Also put up in grosses, assorted Nos. 1 to 6 and 10 gross in a box.

FRET SAW SETS

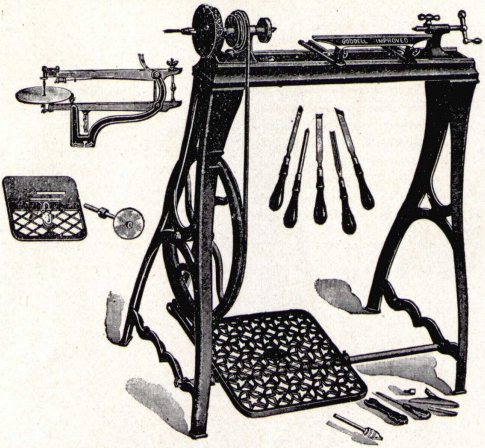
No. 1

Spring steel frame, 12x5 inches, rough nickeled; japanned iron handle; patent clamps.
Also furnished with each frame. 12 saw blades, 1 awl, 1 sheet of impression paper, and 3 sheets of designs.
Weight, per dozen (with pasteboard boxes), 10½ lbs.
Price, per dozen, **$10.00.**
Packed 1 set in a pasteboard box.

No. 2

A superior spring steel frame, **POLISHED AND NICKELED,** 12x5 inches; **ROSEWOOD** handle; patent clamps.
The same accessories as with No. 1 set.
Weight, per dozen (with pasteboard boxes), 13 lbs.
Price, per dozen, **$15.00.**
Packed 1 set in a pasteboard box.

GOODELL LATHE AND SAW

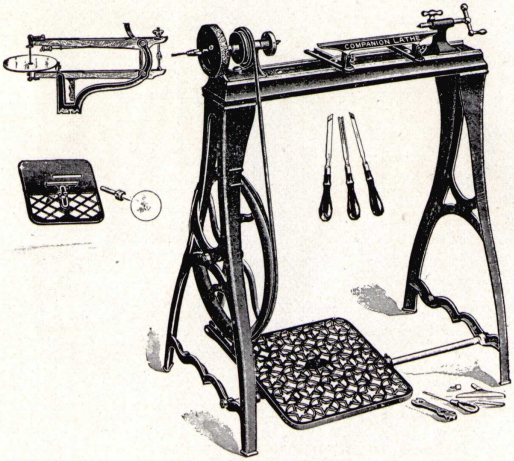


DRIVE WHEEL AND CONE PULLEY with two grooves to permit change of speed.
Accurate **DRILL CHUCK** holding from 0 to ¼ inch in diameter round shank drills for boring in metal or wood.
LONG AND SHORT TOOL RESTS.
FIVE TURNING TOOLS, WRENCH AND DRILL POINTS, etc.
Lathe head with 2-inch **FACE PLATE** and **SPUR CENTER** and **SCREW CENTER** for turning cups.
EMERY WHEEL, 4¼x ⅞ inch.
DRILL SPINDLE WITH CHUCK for drill points for wood boring.
TAIL STOCK WITH SCREW FEED clamped at any point.
Swing of lathe, 5 inches; distance between centers, 13½ inches; distance of bed from floor, 27 inches; length of bed, 24 inches.
Fret sawing attachment, quickly attachable or detachable, with nickeled table, ash wood arms, dust blower, adjustable saw guide and lever, saw blades, designs, etc.
Circular saw attachment with saw table 6x7 inches, saw arbor, saw blade 3 inches in diameter, and straight edge guide.
The whole machine is thoroughly built and highly finished, polished parts being nickeled.

	Weight, Boxed	Weight, Net	Price
Lathe and lathe tools	71 lbs.	50 lbs.	**$13.00**
Lathe and scroll saw attachment	78 lbs.	57 lbs.	**15.00**
Scroll saw attachment	16 lbs.	7 lbs.	**2.00**
Circular saw attachment		3 lbs.	**1.25**

Knocked down and packed 1 machine in a wooden box.
IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.
For prices of parts see page 113.

COMPANION LATHE AND SAW ATTACHMENTS



The same as the Goodell machine, shown next preceding, except that it is not so highly finished, nor is drill chuck or more than three turning tools furnished.

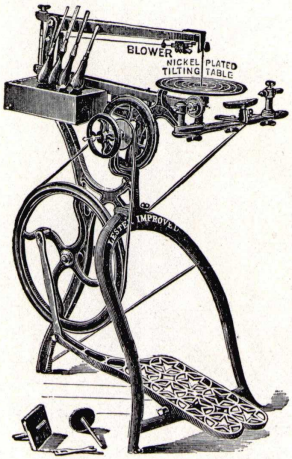
	Weight Boxed	Net	Price
Lathe and lathe tools	71 lbs.	50 lbs.	**$9.00**
Lathe and scroll saw attachment	78 lbs.	57 lbs.	**11.00**
Scroll saw attachment	16 lbs.	7 lbs.	**2.00**
Circular saw attachment		3 lbs.	**1.25**

Knocked down and packed 1 machine in a wooden box.

IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.

For prices of parts see page 113.

LESTER IMPROVED SAW AND LATHE



Made of iron and steel castings japanned black and ornamented with red and gilt; arms and pitman of ash wood.

HEAVY DRIVING WHEEL, weighing 13 lbs. and 15 inches in diameter.

TILTING SAW TABLE NICKELED.

Arms swinging clear, 18 inches.

AUTOMATIC DUST BLOWER.

ADJUSTABLE LEVER CLAMPS.

Capacity of cut, $\frac{1}{16}$ to $\frac{1}{2}$ inch stuff.

EMERY WHEEL.
Drill spindle and **SIX DRILL POINTS.**

LATHE ATTACHMENT with rest, steel centers, and three turning tools. Length of bed, 15 inches; distance between centers, 9 inches swing, 3 inches; length of slide rest, 4 inches.

CIRCULAR SAW ATTACHMENT with saw blade 3 inches in diameter and table 3x4½ inches.

Also furnished with each machine: 12 fret saw blades, 1 wrench, 1 screw driver, 3 sheets of designs and a box for the small tools.

Height, fret saw only, 35 inches.

Height, fret saw with lathe and circular saw attachment, 35 inches.

Weight, boxed, fret saw only, 81 lbs.

Weight, boxed, with lathe and circular saw attachment, 87 lbs.

Weight, net, fret saw only, 50 lbs.

Weight, net, with lathe and circular saw attachment, 56 lbs.

Price, fret saw only, **$10.50.**

Price, with lathe and circular saw attachment, **$13.00.**

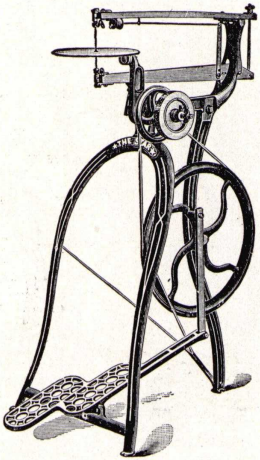
Knocked down and packed 1 machine in a wooden box.

Chuck to hold twist drills from 0 to ¼ inch in diameter for work in metal, with a tail stock and screw center extra, **$2.50.**

Large table 6x7 inches for circular saw, with straight edge guide, **$0.60.**

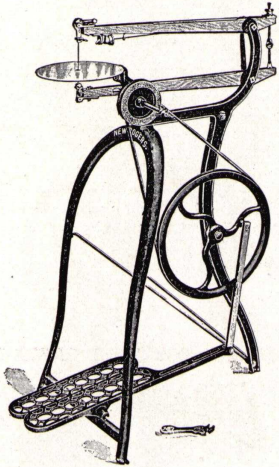
For prices of parts see page 114.

THE STAR FRET SAW



A well balanced, steady machine.
Iron castings japanned black and ornamented with red stripes; steel arbors.
HEAVY DRIVE WHEEL, giving power
ARMS HUNG IN THE MIDDLE OF THEIR SUPPORTING CASTING to give free and easy motion; **ADJUSTABLE**, so may be kept parallel.
Two balance wheels, **ONE EACH OF IRON AND EMERY**, adding steadiness to the motion.
ADJUSTABLE CLAMPS FOR THE EMERY WHEEL, capable of embracing other sizes of emery and buffing wheels, grindstones, etc.
NICKELED TILTING SAW TABLE.
AUTOMATIC DUST BLOWER.
Lever saw clamps and adjustable saw guide.
Depth of arms, 18 inches.
Whole height of machine, 37 inches.
Weight, boxed, 60 lbs.; net, 40 lbs.
Price, **$6.50.**
Knocked down and packed 1 in a wooden box.
For prices of parts see page 115.

THE NEW ROGERS FRET SAW



Iron castings, japanned black with red and gilt stripes; steel arbors; arms and pitman of best selected ash wood.

BEARINGS TO THE ARMS CAREFULLY ADJUSTED.

AUTOMATIC DUST BLOWER.

JOINTED STRETCHER ROD, permitting free action of arms.

ADJUSTABLE LEVER SAW CLAMPS WITH HINGED JAW to overcome a disagreeable raking overthrow of the saw blades and to **PREVENT BREAKAGE OF BLADES.**

DRILLING ATTACHMENT on the right hand side of balance wheel.

Parts secured to each other by nicely fitting screws and bolts.

Each machine is **SET UP** and **RUN** and **CAREFULLY INSPECTED** before leaving our works.

Also furnished with each machine: 12 saw blades, 1 wrench, 3 sheets of designs, 1 awl, impression paper, and 3 drill points.

Height, 35 inches.

Weight, boxed, 45 lbs.; net, 28 lbs.

No. 1, with japanned tilting table and iron balance wheel, **$4.50.**

No. 2, with nickeled tilting table and emery balance wheel, **$5.25.**

Knocked down and packed 1 in a wooden box.

For prices of parts see page 114.

CRICKET SAW

Of the same general plan as other fret saw machines, shown preceding, except that it is made of lighter castings.

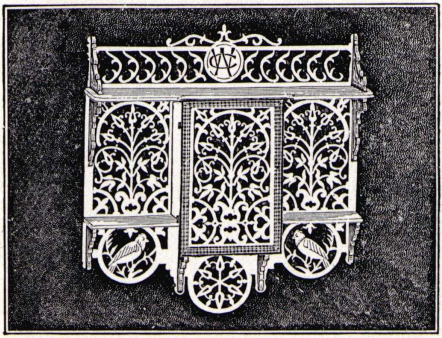
Height, 33 inches.

Weight, boxed, 35 lbs.; net, 17 lbs.

Knocked down and packed 1 in a wooden box.

Price, **$3.50.**

DESIGNS FOR FRET SAWING



No. 215 Wall Cabinet.

We are publishers of Bowman's and Russell's designs, comprising a large variety Catalogues, showing designs and mouldings in miniature, will be furnished on application

PRICE LIST OF FANCY WOODS

NAME OF WOODS.	PLANED TO THE FOLLOWING THICKNESS.		
	⅛ inch.	5/16 inch.	¼ inch.
Black Walnut ..... per square foot	$0.11	$0.13	$0.14
White Holly ..... " " "	.12	.14	.16
Poplar ..... " " "	.04	.05	.06
Plain White Maple ..... " " "	.06	.08	.09
Oak ..... " " "	.09	.10	.12
Cherry ..... " " "	.09	.11	.13
Mahogany ..... " " "	.12	.14	.16
Bird's-eye Maple ..... " " "	.12	.15	.16
Cocobolo ..... " " "	.16	.19	.22
Rosewood ..... " " "	.24	.27	.34
Amaranth ..... " " "	.16	.20	.25
Satin Wood ..... " " "	.24	.27	.30
Tulip ..... " " "	.40	.46	.57
Ebony ..... " " "	.50	.57	.68

PRICES OF GOODELL & COMPANION LATHE PARTS

NAME OF PARTS.	Companion.	Goodell.
Lathe Bed	$0.75	$0.75
Legs ..... each (2)	.75	.75
Treadles	.50	.50
Treadle Rod	.15	.20
Treadle Caps ..... each (2)	.05	.05
Driving Wheel	1.25	1.25
Driving Wheel Bolt	.15	.15
Emery Wheel	.40	.40
Head Block	.20	.25
Head Block Spindle and Face Plate	.25	.25
Head Block Spindle Cone Pulley	.15	.20
Tail Block	.20	.25
Tail Block Spindle and Crank	.20	.30
Tail Block Spindle Binder	.10	.15
Long Rest	.20	.30
Short Rest	.10	.15
Rest Sockets ..... each (2)	.15	.15
Spur Center	.20	.20
Screw Center for Cups	.15	.15
Star Chucks	...	2.00
Saw Attachment Arm Casting	.50	.50
Arms ..... per pair	.30	.30
Table	.60	.60
Stretcher	.15	.15
Clamps ..... per pair	.25	.25
Bolts	.03	.05
Turning Tools ..... (5)	...	1.25
Turning Tools ..... (3)	.75	...
Arm Bolts and Nuts	.06	.06
Belt	.15	.15
Drills ..... per dozen	.50	.50
Pitman, Long	.10	.10
Pitman, Short	.05	.05
Pitman Screws	.05	.05
Screw Driver	.25	.25
Blower	.25	.25
Table Bolt	.03	.03
Wrench	.06	.06
Saw Guide (New Pattern)	.10	.10
Arm Spring	.05	.05
Winged Drill Nut	.05	.05

LESTER SAW REPAIRS

Arms, per pair	$0.30
Arm Bolts and Nuts	.06
Arm Spring	.05
Balance Wheel	.50
Belt	.15
Brace	.10
Circular Saw	.25
Circular Saw Arbor	.15
Circular Saw Table	.12
Clamps, per pair	.25
Drills, per dozen	.50
Drill Nut	.05
Drive Wheel Arbor	.15
Drive Wheel	1.25
Emery Wheel	.40
Frame	1.50
Front Leg	.85
Lathe Bed	.35
Lathe Head Stock	.25
Lathe Tail Stock	.16
Lathe Rest	.05
Lathe Rest Socket	10
Lathe Pulley	.10
Lathe Tail Center	.10
Lathe Spur Center	$0.20
Lower Arm Guide	.05
Locking Bolts	.03
Pitman, Long	.10
Pitman, Short	.05
Pulley	.10
Pitman Screws	.05
Rest Socket Bolt	.05
Saw Guide	.10
Screw Driver	.25
Scroll Saw Table, Nickel	.65
Scroll Saw Table Guide	.20
Spindle and Crank	.20
Stretcher	.15
Stove Bolts, each	.02
Treadle Caps, per pair	.10
Treadle	.50
Tool Box	.12
Blower	.25
Table Bolts	.03
Thumb Nuts	.05
Thumb Screws	.05
Turning Tools, per set (3)	.75
Wrench	.06

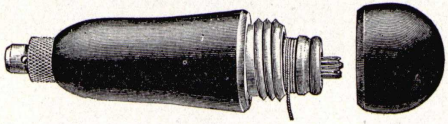
ROGERS SAW REPAIRS

Arm Bolt	$0.02
Arm Casting	.40
Arms, per pair	.30
Arm Spring	.05
Back Leg	.30
Balance Wheel, Iron	.25
Balance Wheel, Emery	.40
Belt	.15
Brace	.15
Blower	.20
Crank and Spindle	.20
Crank Screw	.05
Clamps, per pair	.25
Drill Nut	.05
Drive Wheel Bolt and Nut	.10
Drive Wheel	$0.50
Front Leg	.60
Headless Screws	.02
Locking Bolt and Nut	.05
Pitman	.05
Pitman Screw	.05
Pulley	.10
Saw Guide	.10
Stretcher	.15
Stove Bolt	.02
Table, Nickel Plated	.60
Table, Japanned	.40
Table Bolt	.03
Treadle	.25
Wrench	.06

PARTS OF STAR FRET SAW AND PRICES

Arm Casting	$0.25
Arm Casting Adjustment, upper arm	.15
Arm Casting Adjustment, lower arm	.15
Arms, per pair	.30
Arm Pin	.02
Arm Bolt, 1 x 1¼ inch Round Head Car, Plated	.05
Back Leg	.40
Frame, to which Arm Casting is attached	.30
Balance Wheel	.35
Brace	.15
Brace Bolt, R. H. Stove 1¼ x 5/16 inch	.02
Blower, complete	.25
Blower Lever	.05
Belt	.15
Crank and Drill Spindle	.25
Crank Screw	.05
Clamps, upper and lower, complete	.25
Clamp Bolts, 1⅜ x 5/16 inch R. H. Stove	.02
Drill Spindle, Wing Nut	.05
Drills, per dozen	.50
Drive Wheel	$1.25
Drive Pulley	.10
Drive Wheel Arbor, complete	.15
Emery Wheel	.40
Emery Wheel Arbor, complete	.10
Front Leg	.75
Locking Bolt	.05
Pitman, Short	.05
Pitman Yoke Castings	.10
Pitman Bolt, R. H. Stove 1⅛ x 5/16 inch	.02
Pitman, Long	.10
Saw Guide	.10
Saw Guide Screw, ⅜ inch No. 8 Machine Screw	.02
Saw Table, Plated	.60
Saw Table Bolt, 1 x ¼ inch R. H. Carriage	.02
Stretcher Rod, complete	.15
Treadle	.25
Treadle Caps, per pair	.10
Treadle Cap Screws, ¼ x ⅜ inch Blind Screws	.02
Treadle Bolt, 1¼ x 7/32 inch R. H. Stove	.02

CRISPIN'S AWL



Hollow, ebonized handle.

Contains, on a spool, 50 feet of best waxed shoe thread, 3 awls, and 5 needles of various shapes and sizes.

Length, 5 inches.

Weight, per dozen, 2 lbs.

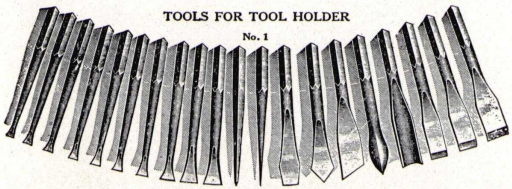
Price, per dozen, $3.00.

Packed 1 dozen in a pasteboard box.

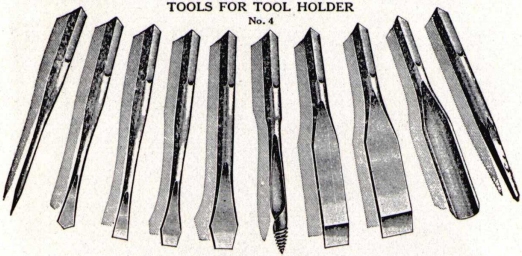
TOOL HOLDERS

For illustrations of tools see page 117 and for general description see page 118.

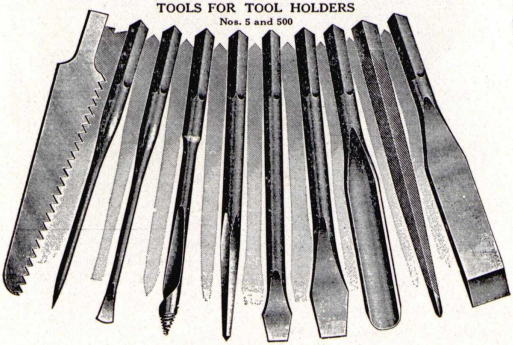
TOOLS FOR TOOL HOLDER
No. 1



TOOLS FOR TOOL HOLDER
No. 4



TOOLS FOR TOOL HOLDERS
Nos. 5 and 500



TOOL HOLDERS

Nos. 1, 4, 5, and 6

For illustrations of handles and tools see pages 116 and 117.

BEAUTIFULLY POLISHED AND FINISHED COCOBOLO; HEAVILY NICKELED shell and jaws.

Hollow handle, containing tools, and closed with a screw cap.

Jaws holding **WITH VISE-LIKE GRIP** tools, as shown in preceding illustrations, also a variety of other kinds of shanks.

Socket and shell threads carefully cut so as **TO MESH PERFECTLY AND PREVENT SHELL FROM WORKING LOOSE AND ALLOWING TOOLS TO DISENGAGE THEMSELVES FROM JAWS.**

Tools made from best steel and **CAREFULLY TEMPERED AND FINISHED AND HONED TO A FINE CUTTING EDGE.**

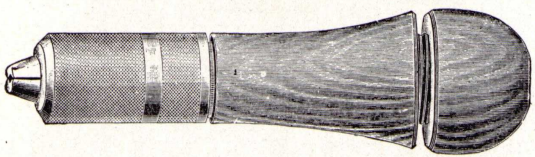
Nos.	1	4	5	6
Length of handle	6 in.	6¼ in.	7½ in	4¾ in.
Number of tools	20	10	10	12
Length of tools	1¾ in.	2½ in.	4 in.	1¾ in.
Weight, per dozen (with pasteboard boxes)	5 lbs.	7 lbs.	11 lbs.	5 lbs.
Price, per dozen	**$14.75**	**$14.75**	**$19.00**	**$11.00**

Nos. 1 and 6 packed ½ dozen in a pasteboard box.

Nos. 4 and 5 packed 1 in a pasteboard box.

TOOL HOLDER

No. 500



The same as Tool Holder No. 5, described above, except that the handle is birch stained to imitate cocobolo and that the tools are polished without blue finish The handle cap has no inserted metal plate.

Weight, per dozen (with pasteboard boxes), 11 lbs.

Price, per dozen, **$14.40.**

Packed ½ dozen in a pasteboard box.

SPOKE SHAVE
No. 1

Metal parts **POLISHED AND NICKELED**; **COCOBOLO** handles.

Circular shape permitting the tool to work in small circles.

Knife so pitched that it cuts instead of scraping the grain of the wood.

Either handle removable for working in cramped quarters.

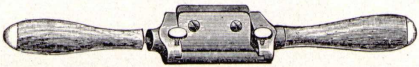
Length, 10 inches.

Weight, per dozen, 5½ lbs.

Price, per dozen, **$12.00.**

Packed ½ dozen in a pasteboard box.

FOUR FACED SPOKE SHAVE
No. 2



COCOBOLO handles; metal parts **POLISHED AND NICKELED.**

Quickly **ADJUSTABLE THROAT REGULATOR,** which may be turned about to present **FOUR DIFFERENT FACES** to the knife; **ONE FLAT, TWO OVAL OR CONVEX, AND ONE CONCAVE.** Wide or narrow throat may be had.

Knife adjustable with set screws.

Either handle removable for working in narrow places.

Length of blade, 2 inches.

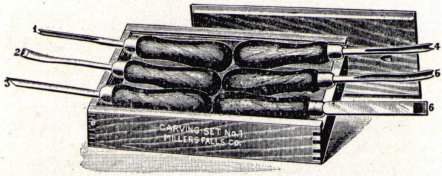
Length of whole tool, 11 inches.

Weight, per dozen, 7 lbs.

Price, per dozen, **$16.00.**

Packed ½ dozen in a pasteboard box.

CARVING TOOL SET
No. 1



BLADES FORGED FROM STEEL OF THE HIGHEST QUALITY; FERRULES POLISHED AND NICKELED; HANDLES COCOBOLO.

Using numbers shown in illustration above, tools are as follows: No. 1, **U TOOL;** No. 2, **SCRAPER;** No. 3, **BEVELED CHISEL;** No. 4, **V TOOL;** No. 5, **CURVED GOUGE;** No. 6, **STRAIGHT CHISEL;** all sharpened for use.

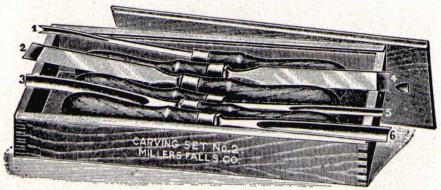
Length of tools, 5½ inches.

Weight, per dozen (with wooden and pasteboard boxes), 7½ lbs.

Price, per dozen, **$16.00.**

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET
No. 2



The same material and finish as in Carving Tool Set No. 1, shown next preceding.

Using numbers shown in illustration above, tools are as follows: No. 1, **V TOOL;** No. 2, **BEVELED CHISEL;** No. 3, **CURVED GOUGE;** No. 4, **STRAIGHT CHISEL;** No. 5, **U TOOL;** No. 6, **STRAIGHT GOUGE.**

Length of tools, 8½ inches.

Weight, per dozen (with wooden and pasteboard boxes), 11 lbs.

Price, per dozen, **$23.50.**

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET
No. 3

Blades **FORGED FROM STEEL OF THE HIGHEST QUALITY**; ferrules **POLISHED AND NICKELED**; **COCOBOLO** handles of a serviceable shape.
Twelve carving tools and one matting tool, making a comprehensive set of shapes and especially adapted for manual training school use.
Hinged boxes, 9¼x8¼ inches in size, when closed, and nicely finished; provided with clips to hold each tool in its place.
Length of tools, except matting tool, average 8¼ inches.
Weight, per set, with wooden and pasteboard boxes, 3½ lbs.
Price, per set, **$6.50.**
Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

MILLERS FALLS GLASS CUTTERS

No. 0

Cocobolo handle; loose iron head, as upon the ordinary diamond cutter; steel cutter wheel, carefully tempered and ground with precision.

Weight, per gross, 10½ lbs.

Price, per gross, **$19.00.**

Packed 1 dozen in a pasteboard box.

No. 1

All iron, polished; steel cutter wheel, scientifically tempered and ground.

Weight, per gross, 12½ lbs.

Price, per gross, **$16.00.**

Packed 1 dozen in a pasteboard box.

No. 5

Iron handle; cutter head polished; steel cutter wheel of the best quality.

Extra heavy for cutting plate glass.

Weight, per gross, 16 lbs.

Price, per gross, **$10.50.**

Packed 1 dozen in a pasteboard box.

No. 7

Light, malleable iron handle; cutter head polished; steel cutter wheel, carefully tempered and ground.

Weight, per gross, 9 lbs.

Price, per gross, **$9.60.**

Packed 1 dozen in a pasteboard box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 13

Iron handle with putty knife; steel cutter wheel of excellent cutting qualities.

Weight, per gross, 12¾ lbs.

Price, per gross, **$9.25.**

Packed 1 dozen in a pasteboard box.

No. 15

Iron handle, center part japanned; a polished cutter head on each end with one steel cutter wheel in each, scientifically tempered and ground.

Weight, per gross, 14 lbs.

Price, per gross, **$16.00.**

Packed 1 dozen in a pasteboard box.

No. 25

COCOBOLO handle; cutter head **POLISHED AND NICKELED.**

MAGAZINE in cutter head **CONTAINING EXTRA CUTTER WHEELS AND AXLES.**

New wheels easily inserted at the working point.

Weight, per dozen, 1¼ lbs.

Price, per dozen, including 6 cutter wheels and 4 axles, **$9.00.**

Packed 1 in a pasteboard box and 1 dozen boxes within a larger pasteboard box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 30

COCOBOLO handle; metal parts, excepting cutter wheels, **POLISHED.**

REVOLVING TURRET HEAD, loosened for turning and clamped fast by a thumb screw, and containing 4 cutter wheels, as well as 4 milled notches to be used as breakers.

Weight, per dozen, $\frac{3}{4}$ lbs.

Price, per dozen, **$3.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

No. 31

COCOBOLO handle; metal parts, except cutter wheels, **POLISHED AND NICKELED.**

REVOLVING TURRET HEAD, shifted and clamped with a knurled thumb screw, and equipped with breakers.

One cutter wheel affixed to the head and extra wheels and axles in a **MAGAZINE** collar, which screws upon the handle.

New wheels inserted into the turret head in a moment's time.

Weight, per dozen, 15 oz.

Price, per dozen, including 12 cutter wheels and 3 axles with each tool, **$8.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

MONITOR GLASS CUTTER

No. 100

Polished and highly finished COCOBOLO handle; head of PRESSED STEEL; REVOLVING TURRET of steel; both turret and head highly POLISHED AND NICKELED; CUTTER WHEELS OF BEST QUALITY STEEL, SCIENTIFICALLY HARDENED AND CAREFULLY TESTED.

Turret shifted by loosening a knurled THUMB screw, which also clamps it fast. This screw is SLOTTED so it may be operated by a SCREW DRIVER if desired.

Turret plate of thin stock, PERMITTING THE CUTTER WHEEL TO BE OPERATED CLOSE TO CUTTING GUIDE.

SEVEN CUTTER WHEELS affixed to the turret; new ones inserted quickly and with ease; axles controlled by a device to prevent their falling out of place while new wheels are being inserted.

Weight, per dozen, 14 oz.

Price, per dozen, $4.00.

Packed 1 dozen in a pasteboard box.

MONITOR GLASS CUTTER

No. 200

The same as Glass Cutter No. 100, shown next preceding, except that the handle end is provided with a MAGAZINE with screw cap, both of brass, nickel plated. Magazine CONTAINS SIX EXTRA WHEELS and the metal end may be used as a breaker.

Weight, per dozen, 1 lb.

Price, per dozen, including 13 wheels and 7 axles with each tool, $7.25.

Packed 1 dozen in a pasteboard box.

THE GEM SOLDERING SET

No. 1

A household implement.

Comprises one **BAR OF SOLDER**, one **BOX OF RESIN**, a **SCRAPER**, and a **SOLDERING COPPER.**

Copper is of **SUFFICIENT SIZE TO RETAIN HEAT.**

May be used as an ordinary soldering copper or, when attached to a gas burner, the gas passes **THROUGH A HOLLOW TUBE WITHIN THE LENGTH OF THE HANDLE** and is ignited at emission holes immediately beneath the copper.

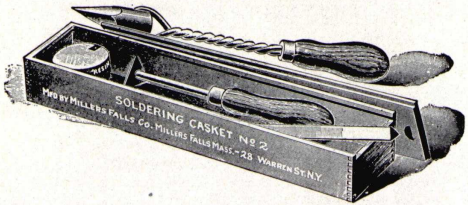
Weight, per dozen sets (with wooden boxes), 12½ lbs.

Price, per dozen sets, **$10.50.**

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

THE GEM SOLDERING SET

No. 2



The same as Soldering Set No. 1, shown next preceding, except that it is not adapted to a gas burner and is not quite so highly finished.

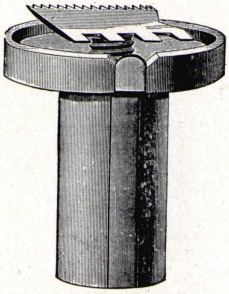
Weight, per dozen sets (with wooden boxes), 11½ lbs.

Price, per dozen sets, **$7.00.**

Packed 1 set in a wooden box.

MILLERS FALLS BENCH HOOK

No. 55



NICKELED STEEL hook; inner surface of cup-shaped socket painted red and remainder of tool gray.

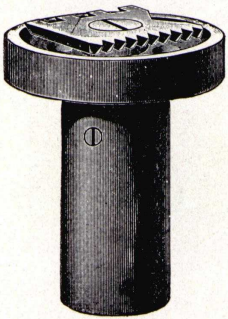
Hook has four faces and can be turned around readily and set at any height by means of a flat spring at side and coil spring beneath hook.

Upper part of socket 2 inches, and lower part 1 inch, in diameter.

Weight, per dozen, 7 lbs.

Price, per dozen, **$6.00.**

Packed ½ dozen in a pasteboard box.



MILLERS FALLS BENCH HOOK

No. 56

Same as No. 55, shown above, except that hook is adjusted and faced by means of a screw in its center

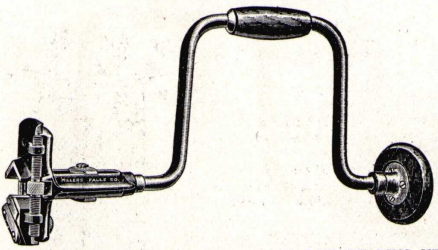
Weight, per dozen, 8 lbs.

Price, per dozen, **$6.00.**

Packed ½ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER

No. 1



A 14-inch sweep bit brace of our No. 40 pattern, with **BALL BEARING HEAD**, especially fitted to the auger, causing the latter always to work true.

Head castings of the auger made of iron, enameled black and red; steel adjusting screw; knife carefully tempered and sharpened.

Adjustable to cut tenons from ¼ to 1½ inches, with a graduated index.

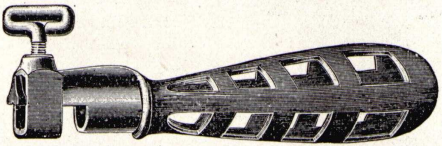
Stop gauge to regulate the length of tenons.

Weight, per dozen (with pasteboard boxes), 46 lbs.

Price, per dozen, **$58.00.**

Packed ¼ dozen in a pasteboard box.

UNIVERSAL HANDLE



Malleable iron, japanned.

Holds, perfectly, files with tangs of all sizes and shapes from a 14-inch mill file to the smallest size in use, also a variety of shanks of different shapes and sizes not exceeding ⅜-inch square or flat.

Serves many of the purposes of a hand vise.

Length, 5½ inches.

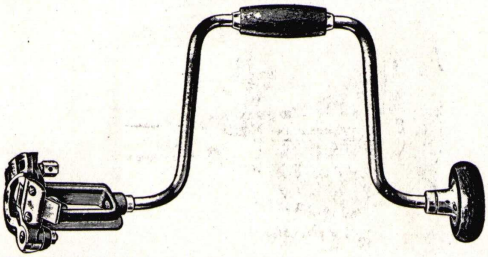
Weight, per dozen, 4½ lbs.

Price, per dozen, **$1.50.**

Packed ½ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER

No. 2



The same as Hollow Auger No. 1, shown next preceding, except as to shape and the manner of adjusting for different sizes of tenons.

For details of mechanism see illustration next following.

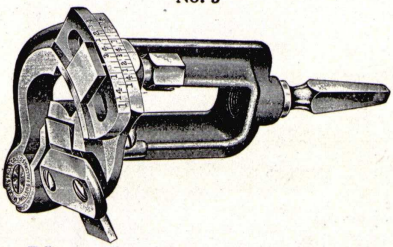
Weight, per dozen (with pasteboard boxes), 43 lbs.

Price, per dozen, $58.00.

Packed ¼ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER

No. 3



The same as Hollow Auger No. 2, shown next preceding, except that, instead of a bit brace sweep, a bit stock shank is furnished to fit into the chuck of a bit brace.

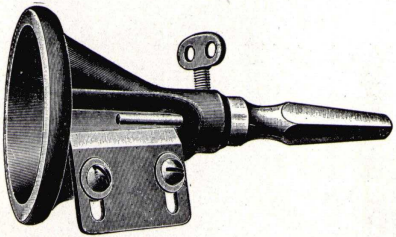
Weight, per dozen (with pasteboard boxes), 22½ lbs.

Price, per dozen, $46.00.

Packed 1 in a pasteboard box.

Note:—Furnished with ½-inch round shank, when so ordered, without extra charge.

SPOKE TRIMMERS



Iron casting, exterior black enameled; steel bit shank, nickeled.

Adjustable knife, sharpened ready for use.

ADJUSTABLE STOP GAUGE clamped with a thumb screw.

Nos.	Capacity.	Weight per doz.	Price per doz.
101	Will cut round stock up to $1\frac{3}{4}$ inches	$9\frac{1}{2}$ lbs.	**$7.20**
	" " square " " " $1\frac{3}{8}$ "		
102	" " round " " " 3 "	20 lbs.	**$11.00**
	" " square " " " $2\frac{1}{4}$ "		

No. 101 will cut square stock up to $1\frac{3}{4}$ inches and No. 102 up to 3 inches, if the corners of the wood are first trimmed.

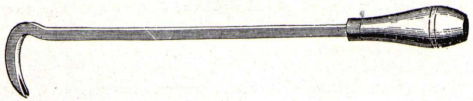
No. 101 packed $\frac{1}{4}$ dozen in a pasteboard box.

No. 102 packed $\frac{1}{4}$ dozen in a pasteboard box.

Note:—Furnished with $\frac{1}{2}$-inch round shank, when so ordered, without extra charge.

PELICAN NAIL PULLER

No. 2



Best tempered steel and hardwood handle.

The claw is driven under nail head by the blow of a hammer upon the heel of the tool.

A rapid working device at small cost.

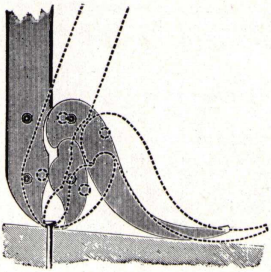
Weight, per dozen, $12\frac{1}{2}$ lbs.

Price, per dozen, **$5.50.**

Packed 1 in a paper package.

MILLERS FALLS NAIL PULLER

No. 3



Hardwood handle with **STEEL RINGS INSERTED IN EACH END TO PREVENT SPLITTING.**

Iron barrel, japanned black.

Polished steel plunger.

Steel jaws, operated **WITHOUT SPRINGS, OPENING AND SHUTTING AUTOMATICALLY** owing to their peculiar relation to the foot or heel. Nails partly drawn from the wood may be gripped by these jaws at any point without slipping.

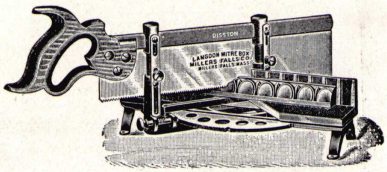
Weight, per dozen (with pasteboard boxes), 48 lbs.

Price, per dozen, **$12.00.**

Packed 1 in a pasteboard box and 2 dozen in a case.

LANGDON MITRE BOXES

Nos. $15\frac{1}{2}$ and $16\frac{1}{2}$



Easily portable and especially adapted to cutting mouldings and other light work.

Guaranteed accurate.

Saw supports may be quickly swung and clamped at any angle from 45° to 90° either right or left, notches being cut in the base plate at the angles most used.

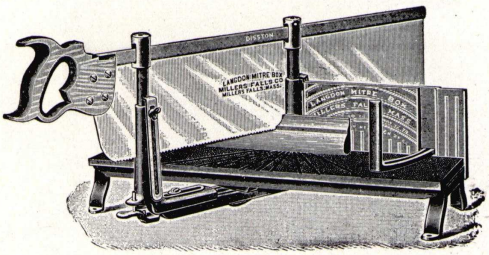
Nos.	$15\frac{1}{2}$	$16\frac{1}{2}$
Size	C	B
Dimensions of saw	16x2½ in.	16x2 in.
Capacity at right angles	4½ in.	4½ in.
Capacity at mitre	3 in.	3 in.
Weight, boxed	14 lbs.	11 lbs.
Weight, net	8 lbs.	7 lbs.
Price	$6.75	$5.50

Prices of boxes without saws: Size C, $4.50; Size B, $3.60.

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

LANGDON MITRE BOXES

Nos. 15 and 16, Size 3.



Especially for wide and deep material.

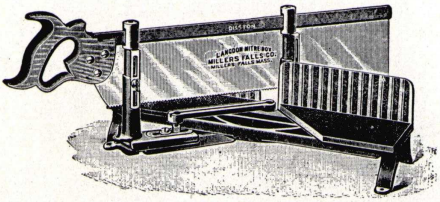
Saw supports may be swung and clamped at any angle from 45° to 90°, the circular arms, shown in the illustration, being used to extend the range beyond that just mentioned. Notches are cut in the base plate at the angles most used.

Nos.	15	16
Dimensions of saw	28 x 6 in.	30 x 6 in.
Capacity at right angles	12¾ in.	12¾ in.
Capacity at mitre	8¾ in.	8¾ in.
Weight, boxed	50 lbs.	53 lbs.
Weight, net	39 lbs.	40 lbs.
Price	**$24.00**	**$24.75**

Price, without saw, **$20.00.**

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

NEW LANGDON MITRE BOXES



Guaranteed accurate when supplied with saws fitted by ourselves.

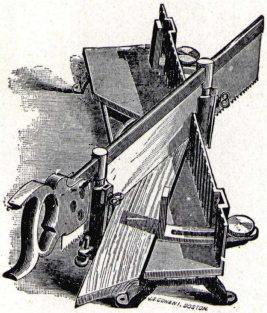
Iron castings, bronze enameled; bright parts nickeled; bottom boards sanded.

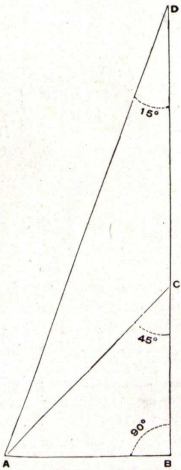
Equipped with depth gauges, front post extensible for stuff of varying widths, and gib (the casting directly beneath the saw) made to support the work to the end of the cut.

Saw supports quickly swung and clamped at any angle from 45° to 90° either to the right or the left, the angles most used being determined by notches cut into the base plate.

Nos.	Size.	Dimensions of Saw. Inches.	Capacity, at Right Angles. Inches.	Capacity, at Mitre. Inches.	Weight Boxed. Pounds.	Weight Net. Pounds.	Price.
17	1	18x4	6¾	4½	24	14	**$9.60**
18	1	20x4	6⅝	4½	25	14	**10.20**
19	1	22x4	6¾	4½	26	14½	**10.80**
20	1	24x4	6¾	4½	26½	14½	**11.40**
21	1	26x4	6¾	4½	27	15	**12.00**
22	2	22x4	9⅜	6⅜	27½	15½	**12.00**
23	2	24x4	9⅜	6⅜	27½	16	**12.60**
24	2	26x4	9⅜	6⅜	28	16½	**13.20**
25	2½	28x5	9⅜	6⅜	30½	18	**14.75**
			BOXES WITHOUT SAWS				
	1		6¾	4½	20½	12½	**$8.60**
	2		9⅜	6⅜	22	14	**10.00**
	2½		9⅜	6⅜	26	18	**12.60**

NEW LANGDON MITRE BOX IMPROVED

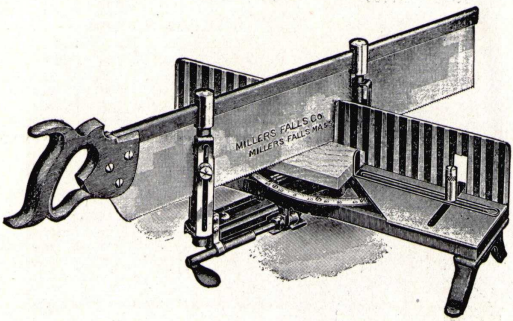




The same as the New Langdon Mitre Box, shown next preceding, except that it is equipped with circular arms, so that it may cut not only at all angles from 45° to 90°, as indicated in the diagram ABC, but also at all angles from 15° to 90°, on 2½-inch stuff, as shown by diagram ABD

Nos.	Size.	Dimensions of Saw. Inches.	Capacity at Right Angles. Inches.	Capacity at Mitre. Inches.	Weight, Boxed. Pounds.	Weight, Net. Pounds.	Price.
26	1	18x4	6⅜	4½	25	16	**$11.00**
27	1	20x4	6⅜	4½	26	17	**11.60**
28	1	22x4	6⅜	4½	27	17½	**12.20**
29	1	24x4	6⅜	4½	28	18	**12.80**
30	1	26x4	6⅜	4½	29	19	**13.50**
31	2	22x4	9⅜	6⅜	29	19½	**13.50**
32	2	24x4	9⅜	6⅜	29½	20	**14.10**
33	2	26x4	9⅜	6⅜	30	20½	**14.70**
34	2½	28x5	9⅜	6⅜	34	22	**17.00**
35	2½	30x5	9⅜	6⅜	35	22½	**17.60**
		BOXES WITHOUT SAWS					
	1		6⅜	4½	21	13	**$10.00**
	2		9⅜	6⅜	22½	14½	**11.25**
	2½		9⅜	6⅜	26½	18½	**13.00**

THE LANGDON ACME MITRE BOX IMPROVED



Iron and steel castings, the main castings with bronze finish; bright parts nickeled.

EXTRA LONG SAW GUIDES TO GIVE STABILITY when the saw is raised to its highest point.

A simple and effective device **AUTOMATICALLY CATCHES THE SAW GUIDES AND HOLDS THEM SUSPENDED** when they are raised to their highest point and **RELEASES THEM INSTANTLY** when desired.

Notches in the bed plate to determine the positive angles most in use.

By the use of a thumb lever at the front of the box the saw supports may be swung freely and **LOCKED AT EITHER A POSITIVE OR AN INTERMEDIATE ANGLE.**

Guides to support the work against the back or to be used **WHEN ANGLES MORE ACUTE** than 45° are desired. These may be slid out of the way through little gateways in the back when not wanted.

An extension lever with a quick acting adjustment. (Size 1 box does not have an extension lever.)

A length gauge for duplicate lengths.

Steel bottom boards roughened to prevent the work from slipping.

A graduated arc upon the bed and an index plate to tell at what degrees to set the saw for certain desired cuts.

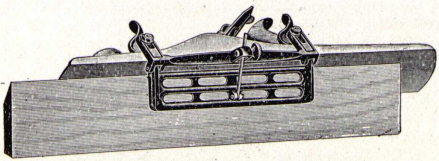
Depth gauge and take-up in case of wear upon the saw.

THE LANGDON ACME MITRE BOX—(Continued)

Nos.	Size.	Dimensions of Saw. Inches.	Capacity at Right Angles. Inches.	Capacity at Mitre. Inches.	Weight, Boxed. Pounds.	Weight, Net. Pounds.	Price.
68	1	22x4	7½	5	34	23	**$13.00**
69	1	24x4	7½	5	35	23½	**13.70**
70	1	26x4	7½	5	36	24	**14.40**
71	2	22x4	10¼	7	34	23	**14.40**
72	2	24x4	10¼	7	35	23½	**15.00**
73	2	26x4	10¼	7	36	24	**15.75**
74	2½	28x5	10¼	7	37	25	**18.25**
75	2½	30x5	10¼	7	38	25½	**19.00**
			BOXES WITHOUT SAWS				
	1		7½	5	26	20	**$10.75**
	2		10¼	7	26	21	**12.00**
	2½		10¼	7	27	22	**14.50**

All our mitre boxes are provided with saws made for us only by Henry Disston & Sons, Limited.

THE PERFECTION JOINTER GAUGE



Made of iron, black enameled, except some of the smaller parts, which are polished and nickeled.

Instantly attachable to iron planes of all sizes by adjustable cams and to wood planes with ordinary wood screws.

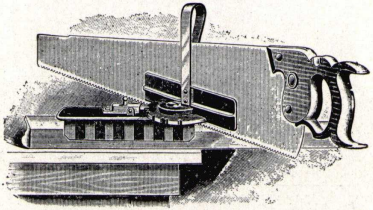
May be adjusted for planing square or on a bevel.

Weight, per dozen (with pasteboard boxes), 26 lbs.

Price, per dozen, **$22.00.**

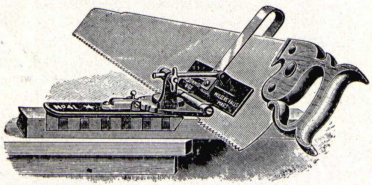
Packed 1 in a pasteboard box.

THE STAR MITRE BOX
No. 40



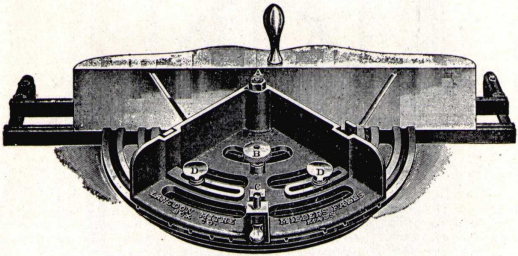
Iron and steel; bright parts nickeled and other parts japanned black.
Especially useful in places where it is impracticable to use a larger box, as for sawing moulding, cornices, etc., at the top of a ladder.
Bed plate with double shelf or rest, permitting the cut to be made at an angle either to the right or to the left.
May be sunk into a bench for stationary use.
Notches cut into the shifting arc determine the angles ordinarily used.
Adapted to either a panel or back saw.
Weight, 2½ lbs.
Price, $2.50.
Packed 1 in a pasteboard box.

THE STAR MITRE BOX
No. 41



Similar to Mitre Box No. 40, shown next preceding, except that the saw clamp is attached to the rest of the tool by a hinge, which permits the saw to be tilted for cutting a wide range of bevels. This is of particular use in jointing floors.
Weight, 2½ lbs.
Price, $3.00.
Packed 2 in a pasteboard box.

THE ROGERS' MITRE PLANER



Used extensively for picture framing.

Made entirely of iron, handsomely finished, for planing straight or curved work.

Principal parts: a semi-circular bed plate with a runway at the rear; a plane sliding upon this runway; and a quadrant swinging to right or left upon the bed plate with the point A, shown in illustration, as a pivot.

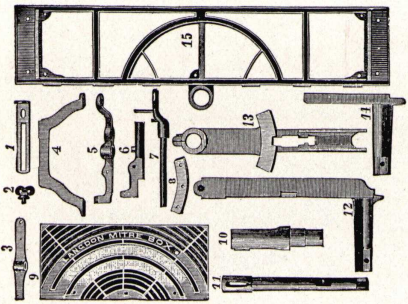
Quadrant clamped by catch C, shown in illustration, in notches in the bed plate at the angles most in use and at intermediate points by thumb screw B, also shown in illustration. When set in the middle of the bed plate, the side elevations of the quadrant form a perfect mitre for four sided work.

Adjustable arms, clamped with thumb screw DD, shown in illustration, of especial use in enabling one to finish the ends and angles on curved work with exactness In preparing pieces for circular or oval work, frames, pulleys, emery wheels, circular patterns, etc., it is necessary to plane the ends of the various segments at varying angles. In planing these the point of the quadrant near the plane and the adjustable guides form the rest required for accurate work.

Size	2	3½	4
Width of knives	2 in.	3½ in.	4 in.
Weight, boxed	47 lbs.	73 lbs.	75 lbs.
Weight, net	32 lbs.	53 lbs.	55 lbs.
Price	$26.00	$32.00.	$38.00.

Extra plane knives, per pair: 2 in., $2.60; 3½ in., $3.20; 4 in., $3.80.

PARTS OF LANGDON MITRE BOX AND PRICES



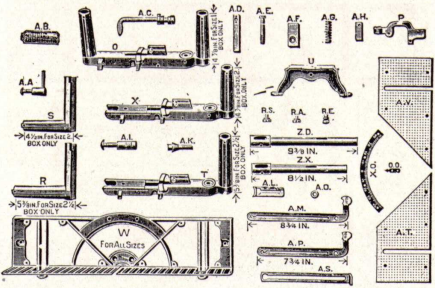
☞ In ordering backs (No. 9) please state whether a right or left hand back is wanted.

All parts of the mitre box are made to interchange, and will be sent by mail, if postage accompanies order, otherwise by express.

☞ Persons ordering parts of boxes will please state the number of the piece wanted and the size of the box for which it is designed.

NAME OF PARTS		Mitre B. Size 1.	Mitre B. Size 2.	Mitre B. Size 2½	Mitre B. Size 3.
1 Stop Gauge	each	$0.10	$0.10	$0.15	$0.20
2 Thumb Screw	"	.10	.10	.10	.10
3 Back Lever	"	.15	.15	.15	.30
4 Legs	"	.15	.15	.15	.30
5 Stop Lever	"	.30	....	....	....
6 Stop Lever	"	....	.45	.45	.50
7 Thumb Lever	"	....	.20	.20	.20
8 Gib	"	.25	.25	.25	.50
9 Back	"	.30	.30	.50	.60
10 Back Post	"	.35	.35	.60	.70
11 Saw Guides	"	.55	.55	.90	1.00
12 Swinging Lever	"	.90	....	....	....
13 Swinging Lever	"	....	1.00	1.00	1.50
14 Sliding Post	"	....	.50	.85	1.00
15 Bed	"	1.00	1.00	1.00	2.00
Bottom Board	"	.10	.10	.15	.20
Spiral Spring	"	.05	.05	.05	.05
Screws	"	.05	.05	.05	.05
Lever Pins	"	.05	.05	.05	.05
Set Screw	"	....	.10	.10	....

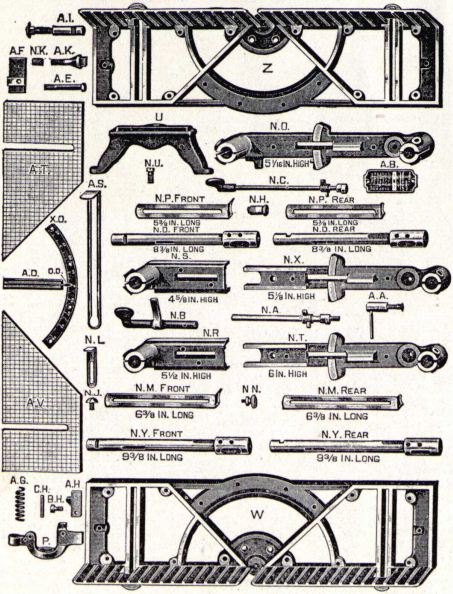
LIST OF PARTS OF LANGDON ACME MITRE BOXES AND PRICES



A. A.	Binder	for sizes 2 and 2½ box	$0.10
A. B.	Index Plate	" all sizes of boxes	.10
A. C.	Thumb Stop Lever	" " " "	.20
A. D.	Gib	" " " "	.10
A. E.	Gib Screw	" " " "	.05
A. F.	Binding Strap	" " " "	.05
A. G.	Spring	" " " "	.10
A. H.	Stop Lever Strap	" " " "	.05
A. I.	Stock Rest	" " " "	.15
A. K.	King Bolt	" " " "	.10
A. L.	Guide Stop	" " " "	.10
A. M.	Elevator Bar	" size 2½ box	.10
A. O.	Washer	" all sizes of boxes	.05
A. P.	Elevator Bar	" sizes 1 and 2 box	.10
A. S.	Length Gauge	" all sizes of boxes	.15
A. T.	Right Hand Bottom Board	" " " "	.10
A. V.	Left " " "	" " " "	.10
O.	Swinging Lever	" size 1 box	1.25
O. O.	Indicator	" all sizes of boxes	.10
P.	Stop Lever	" " " "	.30
R.	Sliding Front Post	" size 2½ box	.75
R. A.	Guide Stop Screw—Rear	" all sizes of boxes	.05
R. E.	Elevator Stop Screw	" " " "	.05
R. S.	Guide Stop Screw—Front	" sizes 2 and 2½ box	.05
S.	Sliding Front Post	" size 2 box	.50
T.	Swinging Lever	" " 2½ box	1.25
U.	Leg	" all sizes of boxes	.15
W.	Bed and Back	" size 2½ box	1.50
X.	Swinging Lever	" " 2 box	1.10
X. O.	Graduated Arc	" all sizes of boxes	.15
Z. D.	Saw Guide	" size 2½ box	.60
Z. X.	Saw Guide	" sizes 1 and 2 box	.50
Z.	Bed and Back	" " 1 and 2 box	1.50

Parts O, P, R, S, T, U, W, and X, have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

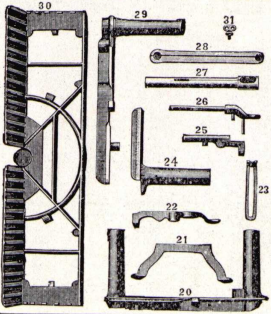
LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES AND PRICES



A. A.	Binder	for sizes 2 and 2½ box	$0.10
A. B.	Index Plate	" all sizes of boxes	.10
A. D.	Gib	" " " "	.15
A. E.	Gib Screw	" " " "	.05
A. F.	Binding Strap	" " " "	.05
A. G.	Spring	" " " "	.10
A. H	Stop Lever Strap	" " " "	.05
A. I.	Stock Rest	" " " "	.15
A. K.	King Bolt	" " " "	.10
A. S.	Length Gauge	" " " "	.15
A. T.	Right Hand Bottom Board	" " " "	.10
A. V.	Left Hand Bottom Board	" " " "	.10
B. H.	Stop Lever Strap Screw	" " " "	.03
C. H.	Stop Lever Pin	" " " "	.02
N. A.	Stop Lever Rod	" sizes 2 and 2½ box	.15

LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES AND PRICES.—Continued

N. B.	Thumb Lever	for sizes 2 and 2½ box	$0.15
N. C.	Thumb Stop Lever	" size 1 box	.20
N. D.	Saw Guide Front and Rear	" sizes 1 and 2 box	.50
N. H.	Elevator	" all sizes of boxes	.25
N. J.	Guide Stop Screw	" " " "	.05
N. K.	King Bolt Stop Screw	" " " "	.03
N. L.	Guide Stop	" " " "	.10
N. M.	Stop Gauge Front and Rear	" size 2½ box	.10
N. N.	Stop Gauge Thumb Screw	" all sizes of boxes	.10
N. O.	Swinging Lever	" size 1 box	1.25
N. P.	Stop Gauge Front and Rear	" sizes 1 and 2 box	.10
N. R.	Sliding Front Post	" size 2½ box	.75
N. S.	Sliding Front Post	" " 2 box	.50
N. T.	Swinging Lever	" " 2½ box	1.25
N. U.	Leg Screw	" all sizes of boxes	.03
N. X.	Swinging Lever	" size 2 box	1.10
N. Y.	Saw Guide Front and Rear	" " 2½ box	.60
O. O.	Indicator	" all sizes of boxes	.05
P.	Stop Lever	" " " "	.30
U.	Leg	" " " "	.15
W.	Bed and Back	" size 2½ box	1.50
X. O.	Graduated Arc	" all sizes of boxes	.15
Z.	Bed and Back	" size 1 and 2 box	1.50



Parts NO, P, NR, NS, NT, U, W, NX and Z have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

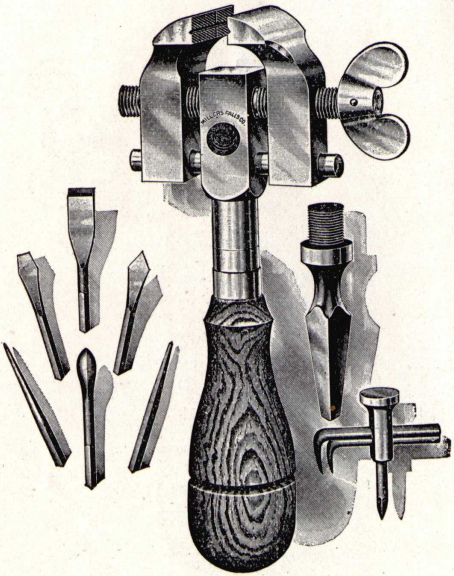
PARTS OF NEW LANGDON AND IMPROVED NEW LANGDON MITRE BOXES

Persons ordering parts will please state the number of the piece wanted and the size of the box for which it is designed. Or if the letters A, B, C, etc., which may be found on the larger castings, are mentioned, they will enable us to determine just what is wanted without further description.

NAME OF PARTS.	Size 1.	Size 2.	Size 2½.	Size 3.
20 Swinging Lever....each	$1.25	...	...	...
21 Legs.... "	.15	$0.15	$0.15	...
22 Stop Lever.... "	.30	...	...	...
23 Stop Gauge.... "	.10	.10	.10	...
24 Sliding Post.... "	...	.50	.85	...
25 Stop Lever.... "	...	.45	.45	...
26 Thumb Lever.... "	...	.20	.20	...
27 Guide.... "	.55	.55	.90	...
28 Gib.... "	.25	.25	.25	...
29 Swinging Lever.... "	...	1.25	1.35	...
30 Bed and Back.... "	1.45	1.45	1.60	...
31 Thumb Screw.... "	.10	.10	.10	...
Circular Arms for Improved Box.... "	.30	.30	.45	$0.50
Thumb Screws for Circular Arms... "	.15	.15	.15	.15

ALFORD HAND VISE

No. 1



COCOBOLO handle; jaws of **FORGED AND TEMPERED STEEL**; screw of steel; exposed metal surfaces **POLISHED AND NICKELED.**

DETACHABLE, HOLLOW handle, with screw cap, containing chisel, screw driver, countersink, square reamer, brad awl, scratch awl, and washer cutter.

Handle may be screwed into the vise at right angles.

Bit shank to be screwed into the tool either in the position of the handle, as shown in the illustration, or at right angles, permitting the vise to be used in a bit brace.

Length, 6¾ inches.

Width of jaws, 1½ inches.

Jaws open, 1⅛ inches.

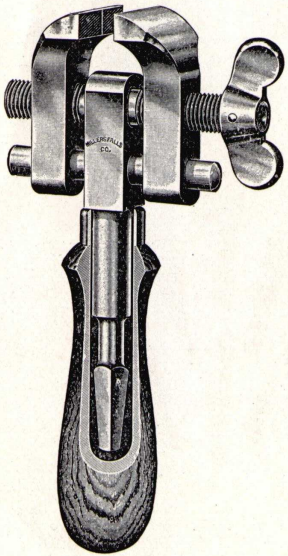
Weight, per dozen (with pasteboard boxes), 12 lbs.

Price, per dozen, **$27.50.**

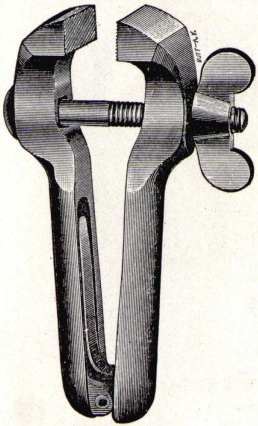
Packed 1 in a pasteboard box.

HAND VISE

No. 2



FORGED STEEL vise, **POLISHED AND NICKELED; COCOBOLO** handle.
Equipped with a bit stock shank for use in a bit brace after removing the **DETACHABLE HANDLE.**
Length, 6¾ inches.
Width of jaws, 1½ inches.
Jaws open, 1¼ inches.
Diameter of screw, ½ inch.
Weight, per dozen (with pasteboard boxes), 13½ lbs.
Price, per dozen, $23.00.
Packed 1 in a pasteboard box.



HAND VISE

No. 3

Solid steel castings, well tempered, in black finish with polished jaws.

Jaws opened by a heavy spring and closed with a thumb nut and screw bolt.

Length, 5 inches.

Width of jaws, 1½ inches.

Jaws open, 1½ inches.

Weight, per dozen, 13½ lbs.

Price, per dozen, **$12.00.**

Packed 1 in a pasteboard box.

POWERS' WAGON JACK

Japanned black and ornamented red.

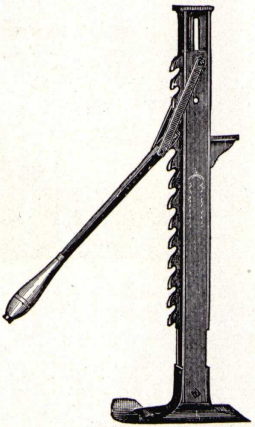
Side supports of wrought iron; foot piece, malleable iron; lift bar, cast iron.

When depressed, the lever is carried past center so as to be self-locking.

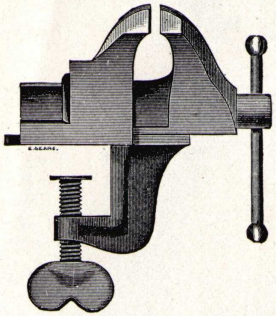
A very quick acting, durable jack.

Nos.....	1	2
Lift.....	12 to 32 in.	14 to 34 in.
Length of lever...	13 in.	16 in.
Will raise..	1,000 lbs.	1,500 lbs.
Weight, per dozen..	155 lbs.	215 lbs.
Price, per dozen..	**$23.00**	**$35.00**

Packed 1 dozen in a case.

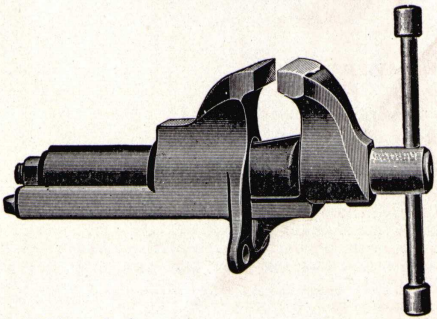


OVAL SLIDE CLAMP VISE



Width of jaw	1½ in.	1¾ in.
Weight	2¼ lbs.	3¼ lbs.
Price	$0.80	$0.90

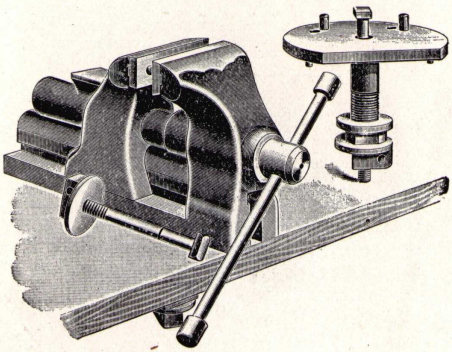
OVAL SLIDE PARALLEL VISE



A substantial, inexpensive vise.
A nut in the rear takes up all wear upon the screw and so prevents lost motion.

Width of jaw	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.
Weight	7 lbs.	11½ lbs.	17½ lbs.	27½ lbs.	35½ lbs.	41½ lbs.
Price	$1.50	$1.65	$2.20	$2.85	$4.15	$6.00

MILLERS FALLS VISE



Detachable and interchangeable steel faces.

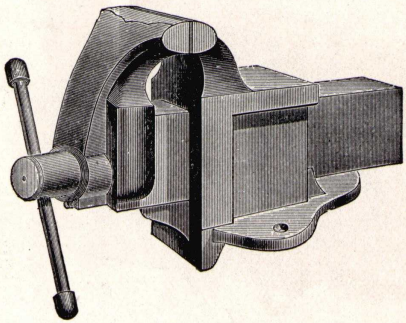
Steel faced anvil on every vise.

Furnished with or without swivel base.

Width of jaw.....	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in	6 in.
Weight.....	8 lbs.	18 lbs.	32½ lbs.	42 lbs.	46 lbs.	54 lbs.	76 lbs.	102 lbs
Price of vise with bolt.	**$3.40**	**$4.65**	**$6.00**	**$7.65**	**$8.50**	**$10.60**	**$14.40**	**$21.20**
Price of swivel base..	**$0.45**	**$0.65**	**$0.85**	**$0.85**	**$1.05**	**$1.25**	**$1.50**	**$1.65**

N. B.—When swivel bases are wanted, so specify on order.

MECHANICS' VISE



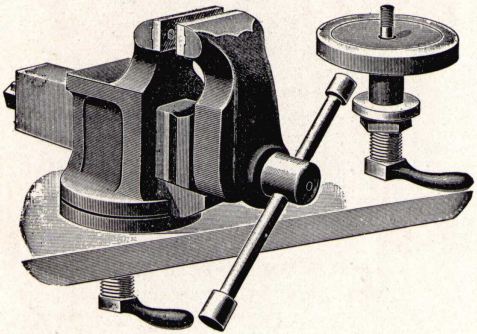
Scientifically designed with **THE GREATEST STRENGTH WHERE THERE IS THE GREATEST STRAIN.**

Detachable steel jaw faces, replaceable if necessary, and steel-faced anvil.

The screw is attached to the vise with a nut which provides for taking up any wear and so obviating any lost motion.

Width of jaw.....	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.
Opens.....	2½ in.	3½ in.	3½ in.	4½ in.	4½ in.	5 in.	5 in.	6 in.
Weight.....	3½ lbs.	11 lbs.	22 lbs.	41 lbs.	41½ lbs.	54½ lbs.	55 lbs.	78 lbs.
Price.....	**$2.35**	**$3.10**	**$4.60**	**$7.30**	**$8.10**	**$10.00**	**$11.55**	**$13.90**

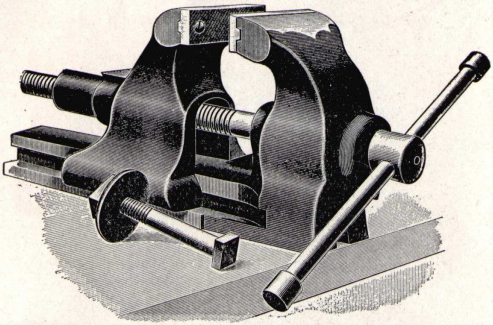
MECHANICS' VISE WITH SWIVEL BASE



Of the same pattern and workmanship as the Mechanics' Vise, described next preceding, except that it is provided with a swivel base.

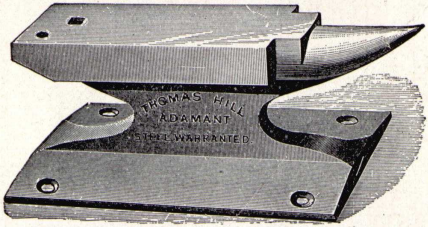
Width of jaw	3 in.	3½ in.	4 in.	4½ in.
Opens	4½ in.	4½ in.	7 in.	7 in.
Weight	48 lbs.	56 lbs.	62 lbs.	63 lbs.
Price	**$8.65**	**$10.00**	**$11.55**	**$13.10**

RAILROAD VISE



Especially adapted for railroad and other shops where heavy work is done.
Inserted steel jaws and steel faced anvil.
Width of jaws, 7 inches.
Opens 15 inches.
Weight, 168 lbs.
Price, **$25.50.**

HILL'S SOLID STEEL ANVILS



FORGED FROM SOLID STEEL WITH A TEMPER BEST ADAPTED TO AN ANVIL.

Face, sides and horn polished; the base japanned black.
Length of horn two inches in addition to length stated below.

Nos.	1	2	3
Length	5 in.	6 in.	7 in.
Width	1¾ in	2 in.	2 in.
Weight	4 lbs.	5½ lbs.	9 lbs.
Price	**$1.90**	**$2.30**	**$2.80**

JACK SCREWS

The easiest acting and best constructed jack screws on the market.

Barrels of cast iron; screws of **STEEL; THREADS ON THE SCREWS LATHE CUT.**

Nos.	Diameter of Screw. Inches.	Height of Barrel. Inches.	Minimum Height of Jack. Inches.	Net Rise. Inches.	Maximum Height of Jack. Inches.	Weight. Lbs.	Estimated Lifting Capacity. Tons.	Price With Lever.	Price Without Lever.
1	1¼	6	9	4	13	8½	5	$2.20	$2.00
2	1¼	7	10	6	16	9½	5	2.50	2.30
3	1½	7	10¾	5	16	16	8	2.70	2.50
4	1½	9	12¾	7	20	20½	8	3.10	2.90
5	1½	11	14¾	9	24	22½	8	3.20	3.00
6	1¾	9	12¼	6	18	22½	12	3.40	3.10
7	1¾	10½	14¼	8	22	25	12	3.60	3.30
8	1¾	12½	16	10	26	29	12	3.90	3.60
9	1¾	14½	18½	12	30	32	12	4.30	4.00
10	2	8	12½	5	17	27	15	4.30	3.90
11	2	10	14	7	21	31	15	4.60	4.20
12	2	12	16½	9	25	35	15	5.30	4.90
13	2	16	20¼	13	33	41	15	6.00	5.60
14	2½	9½	15	8	23	45½	20	6.40	5.70
15	2½	11½	16½	10	27	50	20	7.10	6.40
16	2½	15½	20½	14	35	62	20	8.10	7.40
17	2½	19½	25	18	43	75	20	9.50	8.80
CAR JACKS									
17½	2	6	10	4	14	19½	15	$3.90	$3.50
18	2	8½	12½	5	17	25	15	4.30	3.90
19	2	10½	14½	7	21	29	15	4.60	4.20
20	2	12	16	9	25	35	15	5.30	4.90

N. B.—Jack screws are furnished with levers unless ordered without.

Jack Screw Nos.	1, 2, 3, 4, 5	6, 7, 8, 9	10, 11, 12, 13 17½, 18, 19, 20	14, 15, 16, 17
Diameter of Lever	⅝ in.	¾ in.	1⅛ in.	1 in.
Length of Lever	17 in.	18 in.	19 in.	24 in.
Weight of Lever	1½ lbs.	2½ lbs.	2¾ lbs.	5½ lbs.
Price of Lever	$0.20	$0.30	$0.40	$0.70

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